The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

VOL. 29. NO. 5. TULSA, OKLAHOMA, JUNE 19, 1930

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Refinery Curtailment Would Aid All

Highest daily average estimated total production in 1929, week ended Aug. 24, 2,975,435 bbls. Lowest in 1929, Dec. 27, 2,595,320 bbls.

Industry Should Take Advantage of Big Consumption It Knows It Will Enjoy During Latter Half of This Year

Highest daily average estimated light oil production in 1929, week ended Sept. 14, 2,534,524 bbls. Lowest in 1929, Apr. 13, 2,142,036 bbls.

By Andrew M. Rowley

Urgent need for curtailment of refinery operations is being stressed more than ever by oil men in all branches of the industry and in practically every area of the United States. Excessive stocks of gasoline have weakened greatly the refined market situation with a consequent reflection upon the crude oil market and the outlook for all during the latter part of this year.

Refiners really have no one to blame except themselves for the present price situation. Statistics covering all branches of the industry are available readily and have been published time after time with warnings as to what might be expected were runs to stills kept at the high levels which have resulted in a steady and substantial increase in the quantity of gasoline in storage.

Consumption of gasoline during the latter half of each year is greater than during the first half. Consequently the industry still has an opportunity to take advantage of this condition and to so plan its operations as to profit from the business it will enjoy during the remainder of this year. As has been pointed out time after time, consumption is one factor in the petroleum industry which can be gauged in advance fairly accurately. Knowing the requirements for the last six months of this year; the quantity of crude oil and refined products in storage at this time; the industry can determine very quickly what curtailment is necessary to reduce stocks—something which must be done if better prices are to prevail.

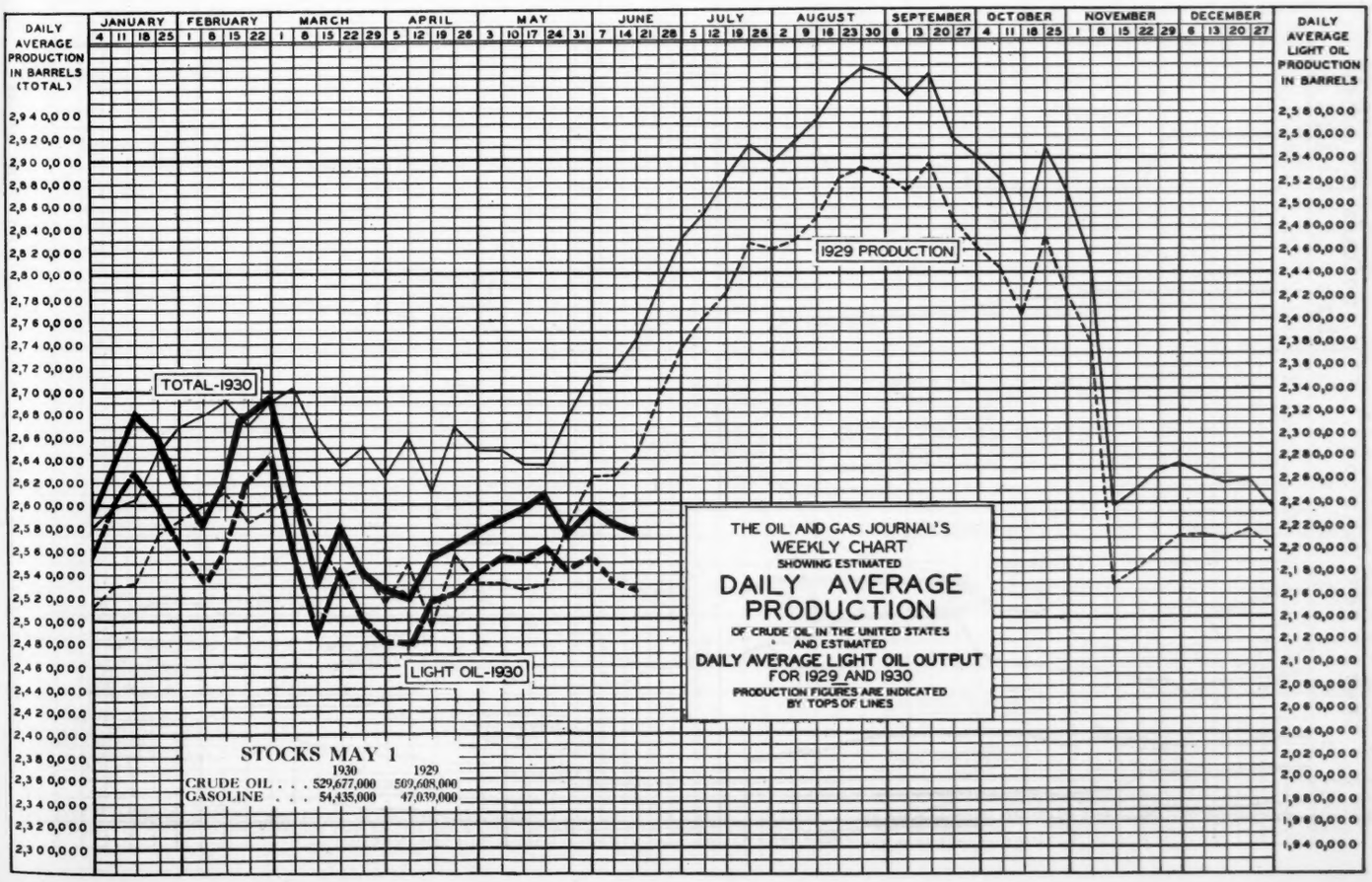
Crude oil producers have shown co-operation, conservation and curtailment can be carried out successfully. The refining branch has been slow to do its share to bring supply and demand into better balance. In a business where this demand is so well known over a definite period of time and where supply and demand control the price structure, it really is hard to understand why refiners fail to take advantage of the situation.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended June 14 and a comparison with the previous week follows:

	June 14		June 7	
	Light	Heavy	Light	Heavy
Oklahoma—				
Oklahoma City	111,265	.....	117,520	.....
St. Louis-Pearson	31,140	.....	24,605	.....
Seminole	213,860	.....	212,340	.....
Northern miscellaneous	252,810	.....	254,020	.....
Southern fields	57,805	.....	58,330	.....
Total Oklahoma	666,880	.....	666,815	.....
West Texas—				
Hendricks	70,345	.....	69,705	.....
Yates	115,713	.....	118,305	.....
Remainder	119,911	.....	121,616	.....
Total West Texas	305,969	.....	309,626	.....
North Louisiana	35,105	5,125	35,625	5,125
Arkansas	18,150	38,650	16,400	40,000
North Central Texas	137,976	.....	138,347	.....
Texas Panhandle	105,785	.....	110,898	.....
East Central Texas	41,205	.....	40,260	.....
Kansas	133,440	.....	134,480	.....
Total Mid-Continent area	1,444,510	43,775	1,452,451	45,125
Gulf Coast	.....	199,860	.....	200,721
Southwest Texas	.....	72,965	.....	73,315
Eastern	132,500	.....	133,000	.....
Rocky Mountain area	81,615	.....	81,798	.....
California—				
Santa Fe Springs	111,000	.....	111,000	.....
Long Beach	92,000	.....	91,500	.....
Huntington Beach	28,500	.....	28,000	.....
Elwood	44,250	.....	46,500	.....
Ventura Avenue	48,500	.....	47,000	.....
Seal Beach	21,000	.....	22,000	.....
Remainder of State	164,000	94,000	160,000	92,000
Total California	509,250	94,000	506,000	92,000
Total United States	2,167,875	410,600	2,173,249	411,161
Grand total	2,578,475		2,584,410	

Total Decrease 5,935 Bbls.; Light Oil Decrease 5,374 Bbls.



Oklahoma Bright Stock Prices Lower

Reductions of 5 Cents Announced Monday Due to Competitive Conditions. Prices on Other Products Generally Lower

By C. O. Willson

A 5-cent reduction in bright stock quotations was the past week's contribution to the Oklahoma (Group 3) refinery market which has been undergoing a price deflation for several weeks. Price changes in other products were generally downward although several market observers were confident on Monday and Tuesday that the bottom had been reached for the immediate future provided posted crude oil schedules were not reduced.

The lowering of bright stocks which was accompanied by price reductions in the steam refined grades with adjustments under way in the finished motor oils, has been expected for several weeks following the collapse in the Pennsylvania market. Oklahoma manufacturers advanced their prices to the highest point in several years early in 1930 following an exceptional strong market throughout 1929. A price of 37 cents to the domestic trade was established for the 150-160 D bright stock, the most important grade in the Mid-Continent Field.

This price was maintained by the larger manufacturers until Monday when the 5-cent reduction was announced. The reduction was preceded by a steady decline in Pennsylvania prices starting the latter part of last year when a high of around 56 cents was obtained for Pennsylvania bright stock. The slump in the Pennsylvania product which is a leader in bright stocks continued until last week when it was being freely quoted at a price range of 30 to 32 cents.

This low priced competition has meant that jobbers and compounders in the Middle West and East could buy the Pennsylvania grade cheaper than the Mid-Continent. Due to this condition the business of the refiners in the latter area for some time has been largely confined to contracts based on published quotations and the price adjustment of Monday was inevitable. Despite the drastic cut, due to competitive conditions it is doubtful if spot business in the Mid-Continent will improve materially. Refiners in all areas apparently have surplus stocks which they are anxious to move either in domestic or export channels.

Lubricating Oil Situation

Those who make a close study of the lubricating oil conditions point to the conditions of the past two years as representative of the rapid changes under way in the manufacturing and marketing divisions of the oil industry which are constantly reflected in markets.

Last year the relatively few manufacturers of lubricating oils in the United States had one of the best years in their history. Due to change in engine design there was a rapid increase in the demand for higher viscosity oils. Greater quantities of bright stock became necessary in compounding and a scarcity developed over a period of several months. In the retail end this was accompanied by advertising programs in which most of the larger oil companies stressed the qualities of their new oils and raised prices from 5 to 10 cents a gallon.

This change in marketing brought constantly mounting prices at refineries. Pennsylvania refiners in particular benefited, a nationwide demand for oils manufactured from Pennsylvania grade crude oils being developed which a limited production and refinery output could not readily supply.

It was apparent before the end of last year that the spurt in lubricants would not continue indefinitely. As is usually the case in the oil industry a favorable situation brought about by an increased demand was nullified by increasing the supply. The production of Pennsylvania grade crude oil increased so that large surpluses developed and refiners were able to buy their raw material at lower prices. In the manufacturing end, refiners enlarged their plants and improved their methods of processing so that larger yields of better stocks were obtained. Remarkable progress has been made during the past two years in lubricating oil refining methods, one phase of which has been the manufacture of bright stocks from crude oils not previously considered desirable for that purpose.

Another angle to the situation has been the greater mileage secured by car owners from the new oils. For a period of several years oil companies and automobile manufacturers stressed the necessity of changing oil every 500 miles. With the better grades this has been ex-

(Continued on Page 158)

REFINED MARKET BAROMETER

Little improvement in refinery tank car markets was apparent in reports from any of the several refining groups in United States. The gasoline demand is showing a seasonal increase but this gain has not been reflected in stronger prices at refineries. The greatest decline of the week was in California where a general reduction in gasoline tank wagon and service station prices in three states has weakened the refinery and natural gasoline market. Kerosenes are also generally sluggish with predictions of lower export prices. Softness continues to characterize the market for all grades of fuel oil, including the lighter distillates. Natural gasolines are generally weak. In the list of lubricants, the cylinder stocks are soft and drastic price adjustments were made in the Mid-Continent. Wax prices continue low with little demand. Petroleum prices lower.

Mid-Continent—Market for all products generally heavy. Spot gasoline moving slowly with price concessions the rule. Natural gasolines weak. Kerosene quotations reflect continued weakness. Little demand for fuels. Bright stock prices reduced. Wax weak.

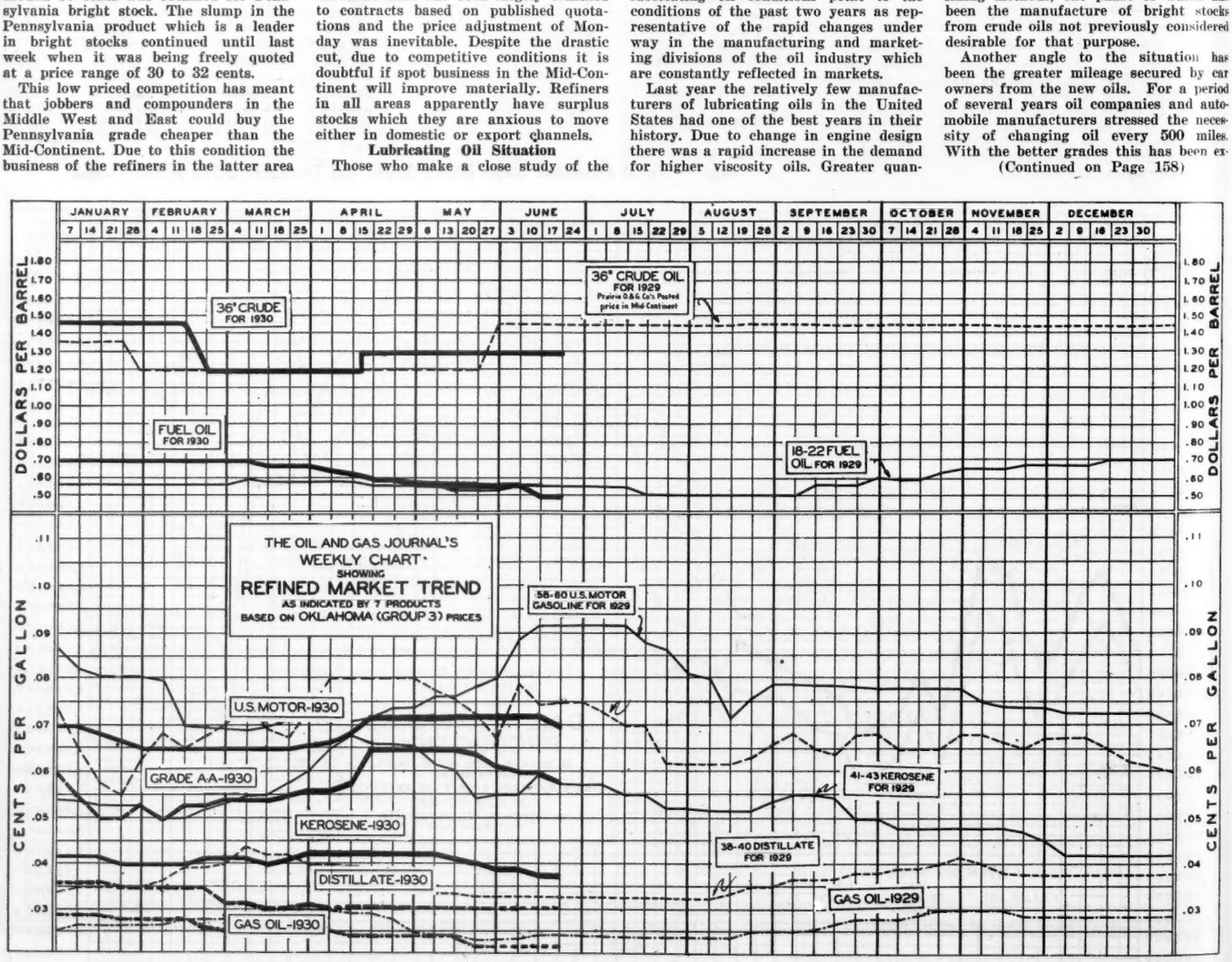
East Coast—Market irregular. Gasoline prices holding but practically all other products weak. Little demand for kerosene. Fuel oil prices unchanged. Gas oil available at reduced prices. Cylinder stock and petrolatum prices lower. Wax inactive.

Chicago—More active demand for gasoline but prices continue to slump. Kerosene weak. Little improvement in industrial demand for fuel oils and prices lower. Lubs weak.

Gulf Coast—Fuel oil easier. Gasoline weak. Slow movement of lubricants.

California—Gasoline market weakens with 3-cent reduction in retail prices in California, Oregon and Washington.

Pennsylvania—Neutral oil and cylinder stocks weak and prices lower on some grades. Gasoline prices soft. Other products unchanged.



Gulf Will Lay Pipe Line Eastward

Combination 10 and 12-Inch Line From Oklahoma to Pittsburgh, Toledo and Cincinnati to Supply New Refineries

By James McIntyre

Some time in July the Union Gulf Corp., a subsidiary of the Gulf Oil Corp., will begin the construction of a pipe line from a point near Tulsa to Pittsburgh, Pa., Toledo, Ohio, and Cincinnati, Ohio. At its western end it will be a combination 10 and 12-inch welded line, with a capacity of 35,000 bbls. of crude oil per day. It will be fed by the Gulf Pipe Line Co. of Oklahoma, one of the oldest and largest pipe line systems in the Kansas-Oklahoma area. It is expected the line will be ready for operation by the end of the year.

There need be no doubt as to a crude oil supply for this line, as the Gypsy Oil Co., another Gulf Oil subsidiary, has a potential production in Oklahoma and Kansas sufficient to supply two lines of the Union Gulf's size, and an actual production of about 55,000 bbls. per day, reduced to that figure by voluntary curtailment. This does not take into consideration the production of the Gulf Production Co., which has perhaps 77,000 bbls. per day of actual production in Texas.

The Union Gulf Corp. will purchase or erect refineries at Pittsburgh, Cincinnati and Toledo and perhaps at a more westerly point, which may be at or near St. Louis. The capacity of the individual plants has not yet been made public, nothing more being known than the fact that the pipe line serving them will have a daily capacity of 35,000 bbls. of crude oil.

The line, starting from the old Glenn Pool near Tulsa, will cross the Mississippi River a little south of St. Louis, and thence run eastward to Pittsburgh. No information has been given out as to its route after crossing the big river. It is likely it will run directly to Pittsburgh, with a branch line running from the main line to Toledo and another to Cincinnati. These branch lines may start at a point in eastern Indiana or in western Ohio. The size of the branch lines and the remainder of the main line to Pittsburgh are not known.

W. L. Mellon, president of Gulf Corp. of Pennsylvania, in a statement with reference to the organization and building plans of the corporation, said: "The plan of the Union Gulf Corp. is considered by the directors of the Gulf Oil Corp. to be the most convenient and economical means to enable Gulf Oil to utilize fully the large production of its subsidiaries in the Mid-Continent, Louisiana, Arkansas and Texas fields in directly supplying the company's present marketing facilities and to promote the growth and expansion of the company's business in the territory east of the Mississippi River, particularly in western Pennsylvania and in the states bordering on the Ohio River and the Great Lakes.

"The new pipe line to be built from eastern Oklahoma to serve the new refineries to be erected at Pittsburgh, Cincinnati and Toledo will connect with the Gulf Corp.'s general pipe line system near Tulsa. In view of existing freight rates this should mean a very substantial saving over the Gulf Corp.'s present method of shipping refined products by rail from its present refineries into the territory east of the Mississippi River. It also will enable the company to economically reach territory which it does not now serve."

A group of banks headed by the Mellon National Bank & Union Trust Co. of Pittsburgh are offering $60,000,000 of Union Gulf Corp. collateral trust sinking fund 5 per cent gold bonds. The funds derived from this issue will finance the pipe line and refinery construction program.

The decision to construct the line from Oklahoma eastward was made after long consideration of every economic angle of the situation. The Gulf Oil Corp. has a refinery at Bayonne, N. J., and another at Philadelphia, from either or both of which it could have laid a gasoline line westward into the marketing territory it wished to cover in its marketing expansion. Such a gasoline line could also have been supplied with motor fuel manufactured at the Gulf Refining Co.'s enormous plant at Port Arthur, Tex., and shipped by tanker to either Bayonne or Philadelphia. As the territory included in its marketing expansion program is that vast consuming area east of the Mississippi River, the middle and central states, the company evidently believed it more economical to place its new refineries in the center of its marketing areas and to directly supply them with crude by pipe line from Oklahoma rather than to ship crude south to the coast, and thence by tanker to eastern coastal plants either in the form of crude oil or gasoline.

Incorporation of the Union Gulf Corp., Pittsburgh, at a capitalization of $100,000 has been approved by the state department at Harrisburg, Pa. The company was formed to produce, refine and sell petroleum and by-products. J. E. Nelson of Pittsburgh is treasurer, and is said to be the principal stockholder. Mr. Nelson is treasurer of the Gulf Oil Corp. of Pennsylvania.

OHIO OIL OWNS TRANSCONTINENTAL BY AN EXCHANGE OF COMMON STOCK

NEW YORK, June 16.—The Ohio Oil Co. has concluded an agreement for the acquisition of the Transcontinental Oil Co. The Ohio Oil Co. proposes to split each present share of common stock into two shares of new stock.

Application will be made to list the new stock on the New York Stock Exchange. The Transcontinental Oil Co. will then convey all its assets to the Ohio Oil Co. and the Ohio Oil Co. will assume all the Transcontinental's liabilities.

The Transcontinental Oil Co. will receive for and distribute to its stockholders in liquidation four-sevenths of a share of new Ohio Oil Co. stock for each share of Transcontinental outstanding. The directors of both companies have approved the plan. The new company, it is figured, will be a $225,000,000 concern.

The consolidation makes the Ohio Oil Co. below only the Humble Oil & Refining Co. and the Gulf Production Co. in production in Texas. In the first quarter of the year the Transcontinental Oil Co. produced 2,824,296 bbls. gross and the Mid-Kansas Oil & Gas Co., an Ohio Oil Co. producing subsidiary operating in Kansas, Oklahoma and Texas, produced 2,831,355 bbls. gross in Texas alone. The combined production of the two companies in Texas was 5,655,651 bbls. in the first quarter, while that of the Humble Oil & Refining Co. was 7,359,322 bbls. and the Gulf Production Co. 6,852,881 bbls. The Transcontinental-Mid-Kansas production was mostly from the Yates Pool in Pecos County. Now that the Ohio Oil Co. takes over the Transcontinental's share in that rich area it may be said that its potential production in Texas alone is somewhere over 1,000,000 bbls. a day. No one knows, and can but guess what the Ohio Oil Co.'s Pecos County holdings could do if there was a market for the oil and

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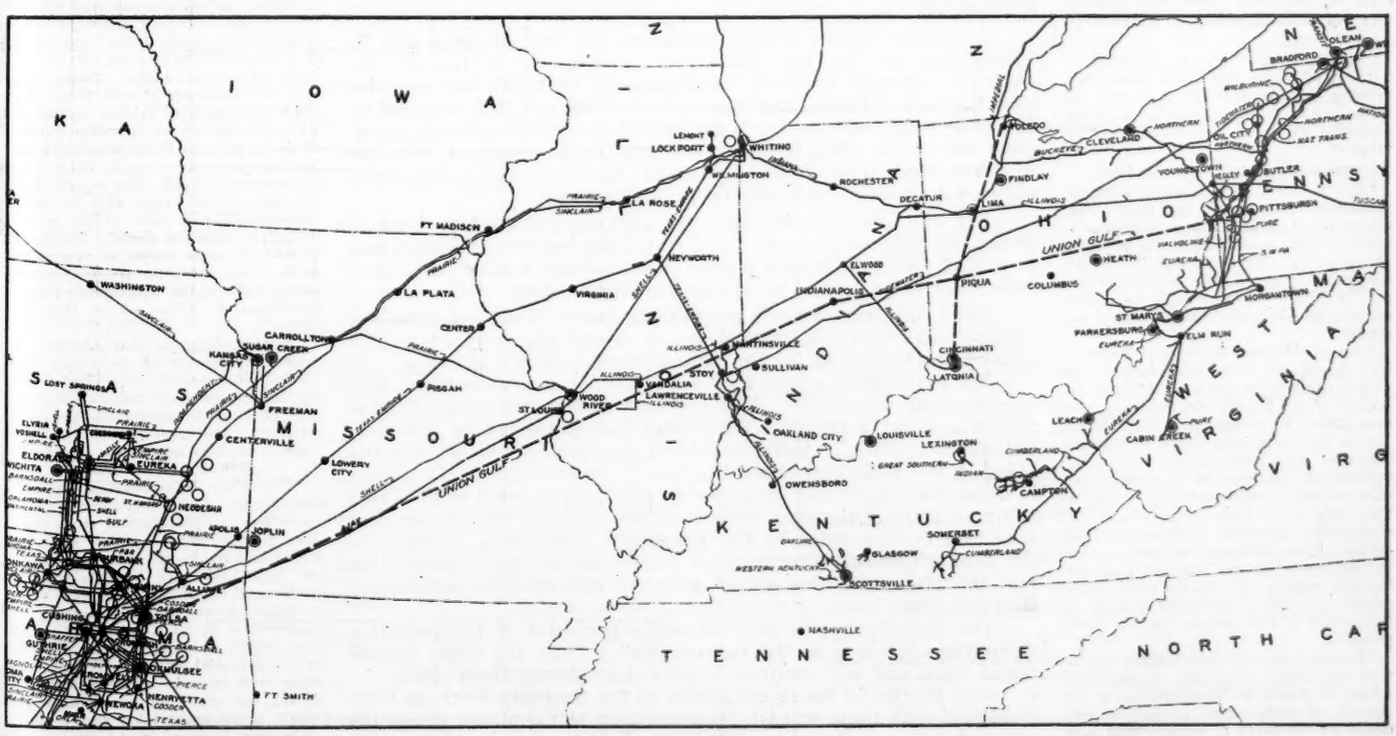
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UNION GULF
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SHELL
GULF
SOUTHERN
INDIANA
ILLINOIS
OHIO
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ROCHESTER
DECATUR
LIMA
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TOLEDO
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BUCKEYE
NORTHERN
PITTSBURGH
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Refiners Must Reduce Runs of Crude

Unless This Is Done Immediately the Market Will Close Year in an Unfavorable Statistical Position, Says "The Lamp"

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, June 17.—While substantial progress has been made in readjusting domestic crude oil production to consumption requirements, the market will close the year in an unfavorable statistical position unless refiners immediately reduce their crude runs from the 2,679,000-bbl. rate of May 31 to the 2,617,000 bbls. necessary to maintain the average needed for 1930 demand, says the Standard Oil Co. of New Jersey in the forthcoming issue of "The Lamp." Characterizing the action of producers in endeavoring to bring crude output in line with the suggestions of the Federal Oil Conservation Board as a step in the right direction, the New Jersey company says: "Recognizing with the industry that crude supplies greatly exceeded market requirements, the Federal Oil Conservation Board appointed some time ago a special committee on petroleum economics to analyze the situation and suggest the amount of raw material actually needed to meet efficiently the demand for petroleum products.

"The committee's report indicates a thorough and expert study of the whole field of oil operations, and its recommendations show an evident desire to arrive at a workable plan which would temper the ideal with practical considerations as it found them. Undoubtedly, the industry would benefit greatly if it worked to bring its operation within the limit set by the committee.

"Subsequent to publication of the results of the economists' investigation, a report was issued by the oil conservation board itself. No more opportune and valuable analysis of the whole oil situation in the United States has been made by a government-appointed body. Taken with the recommendations of the board's Committee on Petroleum Economics, it constitutes a definite and constructive program of, operations which the industry may follow to its profit or disregard to its detriment.

"The high-lights of the board's observations, in so far as they affect production, refining and the problem of storage, together with the suggestions of the committee of economists, are well worth reviewing.

Recommendations of Committee

"Boiled down, the committee's recommendations amount to just this: That the producer must cut his production to approximately two-thirds of the potential output of existing fields and the refiner reduce his runs of crude to stills in proportion if the oil business is to achieve an economic balance between supply and demand.

"Overproduction.—In spite of the excessive storage of crude and products, the output of fields in the United States increased about 113,000,000 bbls. last year over 1928. In effect, this figure might just as well have been raised to 153,000,000 bbls. For 1929 figures show a 10,000,000-bbl. increase in casinghead gasoline, which is equivalent to 40,000,000 bbls. of crude from a standpoint of straightrun gasoline production from crude. The emphasis placed in the board's report on the importance of casinghead gasoline is in no wise exaggerated, in view of the rapid increase in the output of this product during recent years.

"Potential Output.—In making up the very reasonable suggestion of the Committee on Petroleum Economics as to the amount of daily crude production estimated as necessary to supply 1930 market requirements for finished products, one significant point should not be lost sight of. It is this: Although recent figures for daily average output of crude in the United States is still slightly above the limit set by the committee, the producer has actually been able to cut the flow of his well to approximately 65 per cent of a reasonable estimate of the country's potential output. Let's see how this works out.

"Estimates of potential production vary widely of course. The gauge method used in the field is of little value for this purpose. The system is well known and consists of shutting down all except a small group of wells in a certain pool and measuring the flow of these for a period of 1 to 24 hours, repeating the process in various sections of the field until the entire area has been covered. Obviously, enough, this method causes a much greater pressure to be built up behind the flow of the few wells being checked at a time, naturally resulting in a deceptively high figure for the whole field.

Potential Figures Excessive

"For example, a recent one-hour gauge of Yates Pool showed a potential daily output of 5,485,000 bbls., probably more than the potential daily output of all the known fields in the United States. It is only fair to add that this estimate was later cut in half, as the original figure was quite patently excessive. As a matter of fact, the only use ever made of such estimates is to allow each individual or producing company in any one area its proportionate share of whatever figure is agreed upon as the output of the entire field.

"It needs only a quick comparison of recent production figures with the estimated potential flow of existing wells to refute the pessimistic argument that the industry's efforts towards conservation are not getting it anywhere.

"At the present time the potential output of all the fields in the United States is probably a little under 4,000,000 bbls. a day, which amount could doubtless be produced for several months, if there were need of it. Moreover, this estimate of 4,000,000 bbls. production of known areas could easily be raised by increasing activity in some of the newer fields now under drilling restraint, such as Kettleman Hills, southeastern New Mexico, West Texas and the Texas Coast Gulf Fields. There has been no shortage of crude production to speak of in any of the world's producing fields for several years, and there is more known potential supply today than ever before. As there are fields where drilling is restrained and practically no areas where wildcatting is not permitted, it is altogether probable that many new supplies of crude will be found during the next few years, adding to reserves already discovered.

Producer Really Making Progress

"As a matter of fact, however, the amount actually being produced at the present time is approximately 2,609,000 bbls. a day—only 65 per cent of the potential daily flow of existing wells, as worked out above. So the producer is really making considerable progress.

"With the actual figures for the first three months of 1930 before them, the committee on petroleum economics set a daily production of 2,573,000 bbls. over the last nine months of the year as sufficient, all things considered. Estimates of crude output during the first five months of the year indicate that, on the same basis, this recommended daily average for the balance of 1930 would remain unchanged.

"Future Supply—A state of mind is a hard thing to shake off. But once shaken it is just as hard to change again. It is not so many years ago when the fear of an imminent shortage of raw material sent every driller into the field in a feverish effort to get all the oil he could while it still lasted. Today, flushed with the discovery of new fields, deeper sands and improved drilling methods, and with the figures of immense stocks of crude on his tank farms constantly before him, the producer is giving little thought to tomorrow's supply. Has he not, through his own efforts, been able to shut in something like a third of the potential output of existing pools? In the fullness of an ample supply of raw material ready to his hand, the producer has been losing sight of the unescapable fact that petroleum is, after all, a limited resource.

"While admitting that previous estimates on reserves of petroleum in the United States must be revised upward, the oil conservation board's observation that each year's production reduces the quantity underground by just that amount is extremely timely therefore.

One Factor Overlooked

"Proration—In considering the recommendations of the petroleum economics committee for proration of crude production in the various states, one factor which has frequently been overlooked in the past should be kept in sight, the problem of flush flow from new wells.

"When a well is first brought in, it is necessary to let it run free for a certain period in order to gain some idea of its potential output. Where several such wells come in within a single field during the course of a month, say, the result is an appreciable and frequently unforeseen increase in the production of that field for the month, regardless of what conservation measures may be in

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REESER REVIEWS SITUATION AT START OF FINAL HALF OF 1930

By E. B. Reeser
President, the American Petroleum Institute and of the Barnsdall Corporation

The first half of the year 1930 is drawing to a close. Will a study of the statistics covering this period be helpful in deciding what our actions shall be during the second half? Are we protecting our own interests as carefully as we should?

Notwithstanding the well-known fact that stocks of petroleum and its products have been steadily climbing and now reach almost 700,000,000 bbls., drilling operations continue at a rate which would indicate that a shortage of crude is imminent.

During the past 12 months 25,000 new wells have been completed at a cost of not less than $625,000,000, which added to the cost of the leases and all appurtenances in connection with the operations, will undoubtedly bring the total expenditures to more than $750,000,000.

Production in the United States at the end of June will be 300,000 bbls. per day less than it was a year ago; so that the industry is actually receiving approximately $400,000 less per day than it obtained before the expenditure of the vast sum referred to. It will be admitted that this is due entirely to the curtailment movement but on the other hand, if the curtailment movement were not in effect, crude prices would be so low that the losses to the industry would probably be $1,000,000 per day greater.

The additions to stocks over the past three years have been so persistent that many producers, I fear, have become so accustomed to it that they take it as a matter of course and believe purchasing companies will continue to add to the accumulation.

The Unitization Plan is progressing but it is not receiving the reception to which it is entitled and we cannot pin any faith on this policy being helpful during the present overproduction situation.

The curtailment program is not a 100 per cent success but it is working out beautifully. The production over the entire United States is about 5 per cent more than that suggested by the Economics Committee. California leads the procession by actually bringing its production below the figures recommended. Oklahoma is doing fairly well with an excess of about 4 per cent; while Texas is a poor third in the race, with an excess of more than 13 per cent over that recommended by the Economics Committee. Because of the holdings of the University of Texas, and the gross production tax, the State of Texas should be more interested in curtailment than any other State.

The industry appreciates the untiring efforts of the proration committees working in the various fields. They are doing a wonderful work and will continue to save the industry from chaos.

Sam Blythe, in his recent article in the Saturday Evening Post, concluded with these words: "Conservation will continue unless the oil producers are the biggest and greediest business jackasses the world has ever known."

Let's not give the world a chance to call us "jackasses."

Less Straightrun Gasoline Needed

Greater Supply of Cracked and Natural Gasoline Taking Care of Normal Increase in Demand Without Additional Crude

By C. O. Willson

"What's wrong with the gasoline market?"

This question in various forms and with expletives of one kind or another during the past few weeks has been asked by everyone connected with tank car sales at refineries. Because the general weakness threatens the stability of the wholesale and retail markets it has also become a matter of concern with managers of bulk and service stations.

The market situation is particularly mysterious at this time to many who point to the fact that the demand for crude oil the first four months of this year exceeded the supply by approximately 5,000,000 bbls., that quantity having been withdrawn from storage between January 1 and May 1.

It is also pointed out that crude oil runs to stills at refineries in the United States for the four-month period were practically the same as last year. Finally the gasoline statistics showing an increase in total demand of 12.6 per cent are stressed as positive proof that conditions should point to higher rather than declining gasoline prices at the start of the main gasoline consuming season for 1930.

Giving full credit to the above favorable factors in the oil situation and conceding that the gasoline quotations have been depressed more than has been justified by conditions, it is nevertheless true that all efforts to strengthen prices have proved futile and a critical situation exists not only in regard to the immediate market but markets generally over the balance of the year.

With crude oil production being kept in line with the demand and refinery crude runs on a parity with last year it is obvious that the industry must look to something outside of the immediate crude oil situation to explain its present condition. The assumptions of the past that a balance in the crude oil supply and demand was all that was necessary to assure favorable conditions in all branches of the business, temporarily at least must be set aside and other phases of the statistical situation considered.

In brief, it is apparent that the failure of the gasoline market to respond to the improved crude oil situation is due to the increased production of motor fuel from other raw materials. The industry has been looking forward to the day when a constantly increasing demand for gasoline could be satisfied without adding to the supply of crude oil and a study of data based on Bureau of Mines reports for the first four months of this year indicates that this goal has about been reached with a possibility that the near future will bring a yearly decline in crude oil requirements.

This development over the past few years has been foretold by economists who have constantly stressed the necessity of considering the production of gasoline regardless of the type, rather than crude oil as the basis for sound conditions in the oil industry. The need for this basis of operation was apparent all of last year when there was a large overproduction of motor fuels and it has been even more obvious so far this year while the industry has been attempting to correct the mistakes of 1929 with sound operating conditions.

Gasoline Demand

The demand for gasoline according to government figures the first four months of this year totaled 139,904,000 bbls., an increase of 15,688,000 bbls. over the same period in 1929. This increase in demand came from a gain of 10.8 per cent in domestic demand and 23.3 per cent in exports. This total increase was greater than expected by most prognosticators at the start of the year and estimates since May 1 indicate that this rate of increase has not been maintained either in the domestic or export outlets.

Now as to the supply which totaled 151,207,000 bbls. for the four-month period. Of this total 77,686,000 bbls. were straightrun gasoline refined from crude oil, 51,894,000 bbls. of cracked gasoline refined from fuel oil and gas oil and the remainder is represented by natural gasoline, a small quantity of benzol and 4,720,000 bbls. of imports.

It is impossible to correlate all phases of the government's reports due to changes made in reporting the refinery data. But in its latest report the Bureau of Mines report under the heading: "Production of Motor Fuel," shows a total domestic production of 146,487,000 bbls. for the first four months of 1930 which compares with 136,109,000 bbls. for the same period in 1929.

The production of straightrun gasoline for these two periods decreased 1,337,000 bbls. while cracked gasoline increased 9,811,000 bbls. and natural gasoline accounted for by the government's figures, increased 1,922,000 bbls. The production of benzol which is estimated, decreased from 1,002,000 bbls. to 984,000 bbls.

These data show that the production of cracked gasoline and natural gasoline from material other than crude oil increased 11,733,000 bbls. the first four months. Thus, this more than exceeded the 10,378,000 bbls. which represents the total increase in domestic production of gasoline for the first four months.

The increase in cracked gasoline and natural gasoline output is practically equal to the 11,517,000 bbls. which represents the increase in domestic demand for the first four months. Exports with an abnormal percentage gain increased 4,171,000 bbls. but this was partially provided for through an increase of 2,666,000 bbls. in imports.

Shown by Charts

This situation is shown graphically in the accompanying two charts. The natural gasoline production is based on government reports obtained from manufacturers and for that reason differs slightly from that previously referred to which is derived from refinery data. It will be noted that the production of straightrun gasoline from crude oil this year has declined for the first time. The increase in 1929 was exceptionally large due to the bringing in of high gravity fields in California which permitted refiners to secure greater yields in their skimming operations. The increase in cracked gasoline has been steady for the past several years and the same is true this year.

The chart on percentage yields of gaso-

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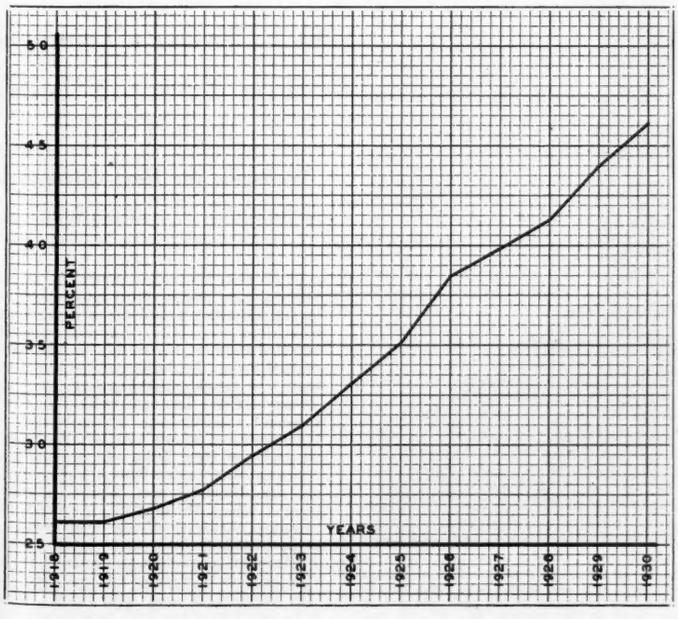
Steady Gain in Gasoline Yields

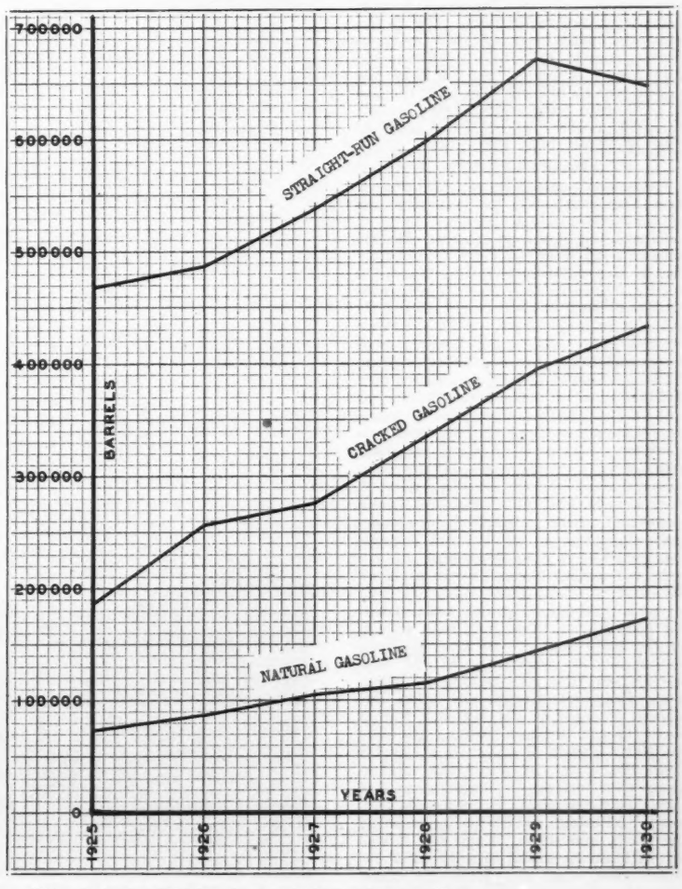


GASOLINE YIELDS FROM CRUDE OIL*

1918.....26.1	1921.....27.7	1924.....33.1	1927.....39.9	1929.....44.0
1919.....26.1	1922.....29.5	1925.....35.1	1928.....41.3	1930†.....46.1
1920.....26.8	1923.....31.0	1926 .....38.5		

*Based on refinery operations. Yields include natural gasoline blended at refineries.
†First four months.

Gasoline From Crude Oil Declines



Note—Data for 1930 based on reports for four months.

DAILY GASOLINE PRODUCTION IN THE UNITED STATES
(Data in barrels)

	Straightrun	Cracked	Natural
1925	469,000	187,000	73,500
1926	488,000	257,000	88,500
1927	539,000	277,000	106,000
1928	599,000	335,000	116,000
1929	671,000	394,000	142,800
1930*	647,000	432,000	147,200

*First four months.

All Came to See Triangle No. 1 Shot

Optimists Confident Taylor's Wildcat Would Open Big Pool in Allegany County and Transform Wellsville into Bustling City

By Thomas F. Smiley

Not since that momentous day in February, 1841, when the first railroad train had puffed importantly into the village had Wellsville, N. Y., been so excited as it was on June 12, 1879, when Taylor's Triumph was to be shot. They weren't calling it Taylor's Triumph yet for the excellent reason that there was no certainty the 1,177-foot hole which O. P. Taylor had been drilling for months on Brimmer Brook, 3½ miles southwest of Wellsville, was going to be a triumph. They called it the Triangle No. 1 because it, the Pikeville Bottom Dollar well on the Smith farm, about 3 miles south, and the Wycoff well in Alma, about 3 miles east, made the three points of a triangle. The two other wells had been failures. There were many predictions that the Triangle No. 1 would be another.

Just over the state line in McKean County, Pennsylvania, oil was king. In 1861 an oil showing had been found on the Beckwith farm, a mile west of Smethport, county seat of McKean County. A little later irreverent drillers starting a well in that district placed on their derrick a placard reading, "Oil, Hell or China." They missed all three. Other prospecting in McKean County met with indifferent success till December 6, 1874, when Butts & Foster brought in a 70-bbl. well 2½ miles northeast of Bradford. The Bradford district forthwith became a scene of active drilling. The inconsequential production of 1874 grew to 25,000 bbls. in 1875 and operations acquired such impetus that in 1876 the output rose to 382,000 bbls. By the end of 1879 there were almost 4,000 producing wells in the Bradford Field, yielding close to 50,000 bbls. daily.

Looked on in Envy

Cattaraugus and Allegany Counties in New York, with only an imaginary line separating them from McKean County in Pennsylvania, looked on in envy. Several wildcat wells were put down in Allegany County, but all were virtually barren of results. Nevertheless, O. P. Taylor continued to insist there was oil there. He gave his reasons. Many laughed. Some sneered. But folk had laughed and sneered at Drake too. In 1878 Mr. Taylor won enough Wellsville residents over to his way of thinking to enable him to drill a test well in the town of Alma. An oil sand was found, but the well was a failure. Another Taylor well the same year, about 3 miles north of the first, struck a small quantity of oil—too small, in fact, to be profitable. But Mr. Taylor persevered under trying circumstances and eventually was able to start Triangle No. 1 on Lot 5, Scio Township.

At this period Wellsville was a placid, well-kept village of 3,000 population, center of a prosperous farming and lumbering community. The fact that it was on the main line of the Erie Railroad lent an air of progressiveness and commercial stir that was lacking in Allentown, Hallsport, Utopia and other less favored villages of the region. But it heard the call to bigger things. Its more optimistic citizens dreamed of a Greater Wellsville, with the pomp and circumstance of a real city—a horse-drawn fire engine perhaps, ridden by uniformed firemen; cobblestone pavements supplanting dirt roads, and so on. Even now it was not without its urban aspects. For instance read what the Wellsville correspondent of the Angelica Reporter had to say of the perils that beset pedestrians as a result of the town's modern propensities:

Look Out, There!

"Velocipedes are getting to be a nuisance. You meet one and it is impossible to tell which way to dodge, and as it has been truthfully remarked, it is unsafe to be on the sidewalk certain hours of the day unless you can climb a tree, lamp or awning post at a second's warning. One or two riders seem to have the animal under proper subjection and ride very well."

O. P. Taylor, who had become a subject of lively discussion following his first wildcat venture, had come from Lynchburg, Va., where he had been in the tobacco manufacturing business. He had been an officer in the Confederate Army in the Civil War, bitter memories of which were still fresh in mind, and this fact may have had something to do with spiteful comments to which he was subjected. He spoke with the soft inflection of the southerner. Mr. Taylor had established a wholesale and retail cigar and tobacco factory in Wellsville and his leading cigar was the "Brook Trout," named from the species of fish which abounded in nearby streams and selling for 10 cents. Each box of the cigars bore a picture of a speckled trout.

Mr. Taylor watched with interest the growth of the oil industry just a few miles to the southwest in Pennsylvania. He became convinced that the oil pool or pools which had brought fame and wealth to the Bradford district extended northeastwardly into Allegany County, New York, and when he began drilling the Triangle No. 1 there were still many who shared his confidence. But as weeks passed there was a marked falling off in enthusiasm. A few resolute souls remained loyal, however, even when finances ran low and discouragements mounted.

Previous drilling ventures in Allegany County had represented little but loss. As far back as 1880 there had been talk about surface indications of oil in the vicinity of Whitesville. In 1865 the Whitesville Petroleum Co. put down a well about 950 feet deep near the village. A showing of oil was reported, but the company had spent all its money and it quit. The Wellsville & Alma Oil Co. went through much the same sort of experience. There was the Pikeville Bottom Dollar well in Alma Township, one of the promotions of Benjamin J. Thomas, whose reputation for unfailing bad luck had earned for him the sobriquet "Dry Hole Ben." Certificates of stock in the Bottom Dollar well, with their large type and impressive border, reposed in sundry bureau drawers and pigeonholes of the neighborhood. The well merely had strengthened Dry Hole Ben's right to his name. Mr. Taylor's previous unsuccessful ventures were not forgotten.

Those who regarded the latest Taylor project with disfavor made much of the county's unfortunate oil history in weighty discussions in Captain Schlick's barber shop, Dan Dobbins' livery stable, Colonel Moore's Fassett House, the Doty Brothers' blacksmith shop, Charlie Winchell's and Pat Sarsfield's saloons and other popular gathering places. The croakers and the prophets of evil outtalked the optimists, and soon grumblings, caustic comments and even plain insinuations of double dealing were directed at Mr. Taylor. He kept on drilling.

High Hopes Prevailed

In the latter part of May, 1879, the Triangle No. 1, at a depth of 985 feet struck a sand strongly impregnated with oil. At 1,109 feet the "third sand" was encountered, opening up a flow of gas, with a stronger showing of oil. The hole was deepened to 1,177 feet, where drilling was suspended and preparations were made to shoot the well. In the meantime about 1½ bbls. of oil was being bailed daily. Mr. Taylor's little band of faithful friends held high hopes and scoffers held their tongues. The two weekly newspapers, the Wellsville Reporter and the Wellsville Democrat, both of which had encouraged the enterprise from the beginning, were jubilant. The Reporter broke out in joyous headlines thus:

OIL, HO!

O. P. Taylor's Triumph!

The Triangle Tells the Tale!

Wellsville the Next Oildorado!

A Thorough Test of the Wellsville District to Be Made!

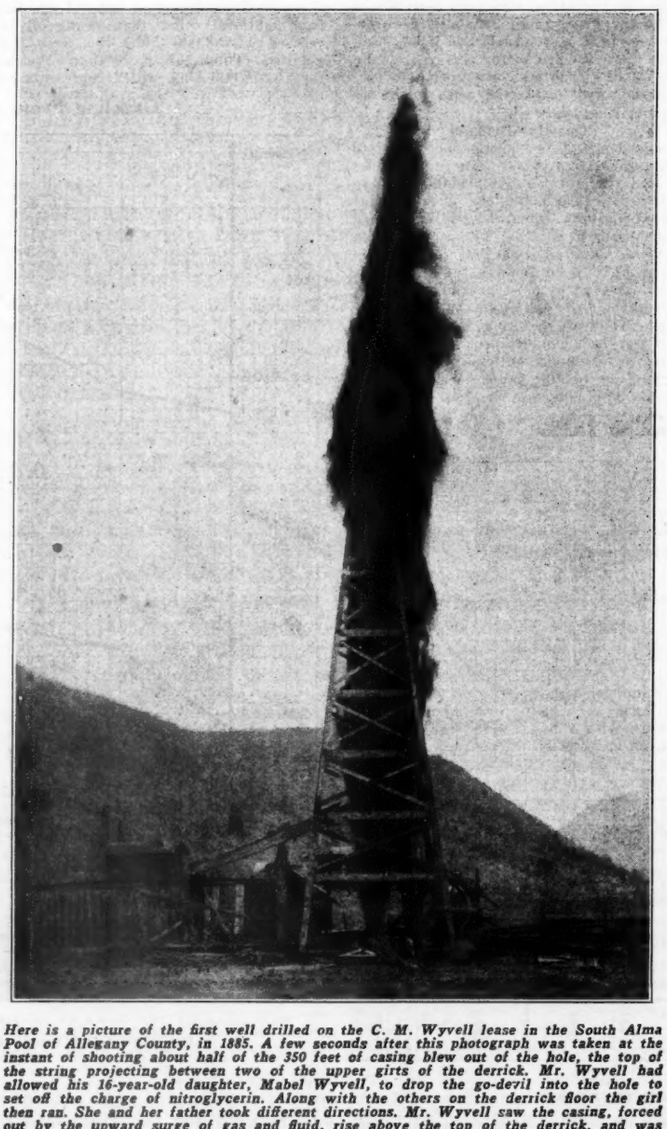
T. Frank Fisher, a merchant of the village, who took a keen interest in Allegany County's petroleum prospects and who along with fellow business men had invested some of his money in dry holes, clipped from the local newspapers from week to week their reports on the progress of the Triangle well. He pasted these in a scrap-book which is now in the possession of his son, W. E. Fisher, an artist of New York. In one of these clippings, now more than a half century old, the Reporter sees Wellsville transformed into a thriving city although the ultimate character of the well remained to be revealed:

"Take off your hats, gentlemen! Wellsville expects to number not less than 10,000 inhabitants one year from today, with two first-class daily newspapers and a couple more street lamps! Steady there!"

Who Cares What Bradford Wants?

Bradford receives this haughty fling: "Bradford would like to have the develop-

(Continued on Page 113)



Here is a picture of the first well drilled on the C. M. Wyvell lease in the South Alma Pool of Allegany County, in 1885. A few seconds after this photograph was taken at the instant of shooting about half of the 350 feet of casing blew out of the hole, the top of the string projecting between two of the upper girts of the derrick. Mr. Wyvell had allowed his 16-year-old daughter, Mabel Wyvell, to drop the go-devil into the hole to set off the charge of nitroglycerin. Along with the others on the derrick floor the girl then ran. She and her father took different directions. Mr. Wyvell saw the casing, forced out by the upward surge of gas and fluid, rise above the top of the derrick, and was horrified to see that his daughter, ignorant of the accident, was right where the casing, apparently about to fall, would crush her. He dashed frantically toward her just as the casing, after balancing uncertainly for a moment, slid back into the hole, where it telescoped, virtually ruining the well.

Pipe Line Basis in Gasoline Prices

Thorough Revamping of Distributing Practices to Follow Pipe Line and Waterway Delivery of Motor Fuel

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, June 16.—Revolutionary changes in gasoline marketing practices, with probable basing of tank wagon and service station prices on pipe line or barge delivery basis in many important interior markets where the Oklahoma-Kansas (Group 3) refinery price plus rail freight has previously been in effect are looked for as a result of the marked trend toward the use of gasoline pipe lines for transporting motor fuel into consuming areas and the supplementary service of river tankers for extending marketing network. "Pipe line heads" will soon take the place of "rail heads" as the starting point for supplementary deliveries, it is believed, with a thorough revamping of distributing practices indicated for the near future.

Executives of many companies which have hitherto relied on all-rail transportation of gasoline and other products into consuming areas are viewing with concern the spread of the gasoline pipe line carrier idea, as well as the evident trend toward inland waterways for gasoline deliveries, and it is believed many of these companies will be forced to "get on the band wagon" to protect their interests, and that further pipe line projects, as well as new marine transportation departments, will be announced in the near future by companies which have up to this time relied on railroad tank car deliveries for taking care of the output of their refineries.

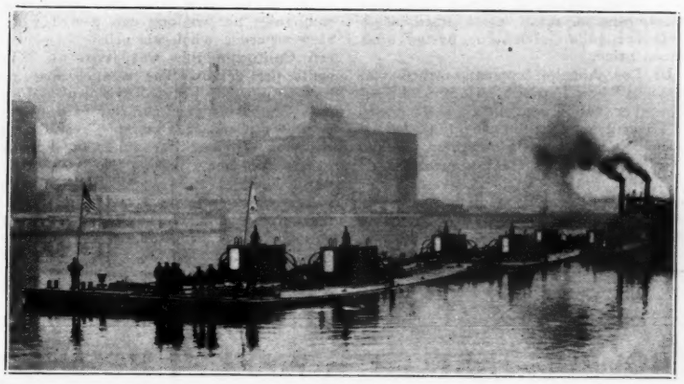
As outlined in a recent issue of The Oil and Gas Journal, there has been in recent months a quiet, but nevertheless pronounced, trend toward the utilization of inland waterway systems by the large companies distributing east of the Mississippi River. This development has been paralleled by the utilization of pipe lines for gasoline deliveries.

New Price Basis

There has been a growing use of coastal tankers and oil barges by many of the large integrated companies in the East during the past few years. Several months ago, the competition which developed as a result of the use of this system of delivery in place of tank car shipments became so intense that leading companies following the lead of the Standard Oil Co. of New Jersey, announced a complete revision in their system of pricing gasoline, and established a basis of prevailing cargo markets at seaboard, plus freight to point of delivery.

Since the introduction of this system there has been more general use of the larger rivers in the North Atlantic States with considerable construction of river and canal tankers and barges, thus further lowering the laid-down cost of motor fuel at inland distributing points. A list of the companies utilizing this system of transportation in the North Atlantic States reads like a "Who's Who" of the oil industry in this area, taking in, among others, Standard Oil Co. of New Jersey, Tide Water Oil Co., Standard Oil Co. of New York, The Texas Company, Gulf Refining Co., Atlantic Refining Co., Shell Eastern, Richfield, Sun Oil Co., Sinclair, Cities Service Co., and others.

Canalization of the Ohio and Monongalia Rivers, with similar projects for opening up navigation on many of the tributary streams and rivers of the inland area East of the Mississippi has marked the first step in yet another phase of the change in gasoline marketing conditions. A number of the large companies during the past year have established river terminals in the Pittsburgh area, with considerable construction of river barges and tankers now under way, in addition to the many carriers of this type which have already been placed in operation. Opening up of the inland waterways to distribution of gasoline and other refined petroleum products was closely followed by a similar policy of expansion by large oil companies operating in the Great Lakes area.



String of oil barges operated by the Standard Shipping Co., a subsidiary of the Standard Oil Co. (New Jersey), in the Ohio River. The barges have a capacity of 100,000 gallons each.

Economy of Pipe Line

To Standard Oil Co. of New Jersey goes the credit for first directing the attention of the industry to the marked economy and other advantages to be derived through the transportation of gasoline from refineries to distributing points by way of pipe line. Utilizing of pipe line system of the Tuscarora Pipe Line Co., which since the cessation of the movement of Mid-Continent crude to Bayonne had lain virtually idle, the New Jersey company's engineers revamped the line, reversed the flow, and early this year started the shipment of gasoline from the New Jersey company's Bayonne refineries, to points in New Jersey and Pennsylvania along the right of way of the Tuscarora line. Gasoline deliveries by this method, it has been ascertained, can be made at a cost of but little over 50 per cent of the average cost of tank car shipments by rail, and the New Jersey company since the start of gasoline shipments through the Tuscarora line has materially extended its marketing operations in Pennsylvania, where a subsidiary company, Standard Oil Co. of Pennsylvania, had been previously organized to take care of this expansion.

The Tuscarora line, through a river transportation system at the line's terminal, linked up the New Jersey company's Bayonne refineries with its Parkersburg plant and opened up for development by the New Jersey sales department the entire territory thus made tributary to these two refining centers. An important phase of New Jersey's expansion through the utilization of the Tuscarora line will be the creator of a widespread network of river distribution, with shipments originating at a large water terminal which the company has established at Pittsburgh.

Sun Oil Co. was next to fall in line with the gasoline pipe line idea and shortly after announcement of Standard of New Jersey's plans for the Tuscarora line, it became known that Sun was about to start the construction of a gasoline pipe line from its Philadelphia refinery across the State to the Ohio border. Since construction of the line has been started, the plans of the Sun Oil Co. have been expanded to provide for the extension of the line to a number of Ohio cities.

Barnsdall was the next large company to make public plans for a gasoline pipe line, launching a line of this type from Oklahoma to Milwaukee, and the Barnsdall announcement was followed by the launching of a similar project by Phillips Petroleum Co., which will run a line from Borger, Tex., to St. Louis, where a large river terminal will be established on the Mississippi. Marketing plans of the Phillips company, it is understood, contemplate an extensive enlargement of distributing territory through utilization of river tankers for transporting gasoline both north and south from the St. Louis terminal of its pipe line.

Ajax and Others

The new Ajax pipe line which Standard Oil Co. (New Jersey) and Standard of Ohio are jointly building from the Cushing Field in Oklahoma to Wood River, Ill., although primarily a crude oil transport project, is being so constructed that one unit of the system, or the entire line, may be converted to the transportation of gasoline when and if desired.

There are numerous reports of contemplated gasoline pipe line projects by other large companies, and the evident trend toward a revision in the method of establishing tank wagon and service station gasoline prices in large consuming areas, due to the utilization of pipe line and waterways transportation, will undoubtedly force further expansion in this direction.

Gulf Oil Corp. is meeting the general invasion of its home marketing area by an important program through Union Gulf Corp., just organized. The new subsidiary will build three new refineries, to be located at Pittsburgh, Toledo and Cincinnati, and will construct a 1,300-mile pipe line from Oklahoma to hook up with these refineries. While the company's announcement indicates that the new pipe line is to be primarily a crude carrier, it is expected that in keeping with the trend of the times the line will be so constructed as to be available for gasoline transmission if this should be deemed advisable later on. An important feature of Gulf's expansion program is seen in its plans for the construction of a $400,000 river terminal at Louisville, and its plans for a number of other smaller bulk terminals along the Ohio, Monongalia and Allegheny Rivers. Gulf is also credited with the purchase of the business of the Paragon

(Continued on Page 154)

CONFERENCE AT AUSTIN JUNE 20 ON NEW TEXAS PIPE LINE LAW

By Neil Williams

HOUSTON, Tex., June 16.—What is expected to be a meeting with far reaching results as to the proration of Texas production in accordance with the market demands of each field is scheduled at Austin, June 20, when the committee representing the Texas Division of the Mid-Continent Oil and Gas Association, the Independent Petroleum Association of Texas and the purchasing companies confers with the state railroad commission on enforcement of the new pipe line law.

At that meeting, which is being held on the date the new Texas pipe line law becomes effective, the committee will discuss with the railroad commission means for restriction of Texas production to within the actual requirements from each field in the State.

In accordance with the request of the railroad commission, the committee at that time will have at hand a statement of the amount of crude which the purchasing companies figure they will need or can handle daily during the next six months' period, not only for the State as a whole but by fields. To determine this amount, questionnaires have been sent to all purchasing companies in each field by David F. Donoghue, Fort Worth, technical advisor of the committee of six which has been making a study of the pipe line and production situation in the State. In the questionnaires Mr. Donoghue has requested each purchaser to state the amount of crude the respective companies will be able to take from each field in the State.

Whether this amount is 700,000 bbls., 800,000 bbls. or whatever it may be, for the State, the conference Friday with the railroad commission will have as its purpose the working out of plans for holding the production within that amount, restricting each district separately in accordance with the demands of crude from those respective districts.

If such a proration of the State's production can be enforced it is anticipated that a permanent balance of production with the market demand will be assured. It is the preliminary plan that the determination of market requirements of the purchasing companies be made at intervals, when any adjustments necessary in proration can be worked out, and that the organization now provided to compile statistical and technical data for the railroad commission be retained as a permanent proposition.

The principal provision of the new pipe line law is that the market outlet for crude oil must be distributed among producers without discrimination against any producer and without unjust or unreasonable discrimination between various pools of the State. It was with this in mind and at the request of the state railroad commission that a detailed survey of the situation was made by the committee representing the two associations and the purchasing companies.

New Gasoline War on Pacific Coast

Stage All Set for Another Periodical Battle for Gallonage. Further Reductions Expected. Must Liquidate Stocks

By L. P. Stockman

LOS ANGELES, Calif., June 17.—Another gasoline war is brewing on the Pacific Coast and the stage is all set for another periodical battle for gallonage. Retail gasoline prices tumbled all along the Pacific Coast over the past week-end and indications point to further reductions within the next week or 10 days. The Texas Company started the ball rolling by making a coastwise reduction and this cut was met within a short time by the Standard, Richfield, Union, Shell, Associated and other large marketers. This price reduction did not come as a surprise because it has been evident that some kind of a readjustment must eventually be made in order to stabilize retail quotations. The most surprising feature in connection with the whole matter is that the major refiners have allowed conditions to continue as long as they have.

Briefly, the situation had resolved itself into such a tangled mess that something tangible just had to be done to equalize prices. Previous to the latest cut, made Saturday afternoon, gasoline of the major companies could be bought all the way from 16 to 20 cents, depending upon whether one patronized an independent reseller or a company-owned station leased out for operation. Stations under control of refiners have been maintaining a retail price fixed at 5 cents per gallon above the posted tank wagon price.

In Los Angeles, company-owned stations had been quoting gasoline at 19½ cents per gallon and in San Francisco at 20 cents per gallon, the tank wagon price being 4 cents below these figures. Resellers were quick to take advantage of this condition, with the result that they began operating on a 2-cent differential instead of 4 cents. This permitted them to undersell regular stations from 1 to 3 cents per gallon and created a very unsatisfactory condition. Company-owned stations in Los Angeles for instance have been maintaining a posted retail price of 19½ cents while a reseller near by, sacrificing part of his differential, was quoting the same gasoline from 1 to 2 cents per gallon less. It is quite obvious that the general public went the extra block and saved the difference.

In order to correct this condition and at the same time make it easier to stabilize prices at a later date marketing companies not so long ago posted what they termed a wholesale price. In southern California this was fixed at 21½ cents per gallon. The reseller was allowed the usual 4-cent differential and an additional 2-cent per gallon rebate at the end of the month. The net result was that the reseller was buying gasoline at exactly the same price as he was when purchasing at the regular tank wagon price, which previous to the inauguration of this method was 15½ cents per gallon. This move designed to stabilize retail prices above 17½ cents per gallon through eventual elimination of the 2-cent rebate failed because of the inroads of independent refiners into gasoline sales.

As the situation looks at the present time, the current gasoline war is due not so much to keen competition among major refiners as it is to the gallonage lost to independent refiners. The major companies are pledged to reduce their stocks of gasoline as the initial step toward stabilization on the assumption that gasoline wars are not so apt to break out if excessive stocks are not carried in storage. It has been a problem, however, to liquidate the present excessive stocks without breaking the market.

It is clear that the major companies can not possibly liquidate gasoline stocks unless they regain some of the business lost to independent refiners during the past few years. The only way this can be done is to meet the prices posted by independent refiners, and apparently this is just what is back of the whole situation at the present time, although it is a known fact that considerable difficulty is being experienced in stabilizing the

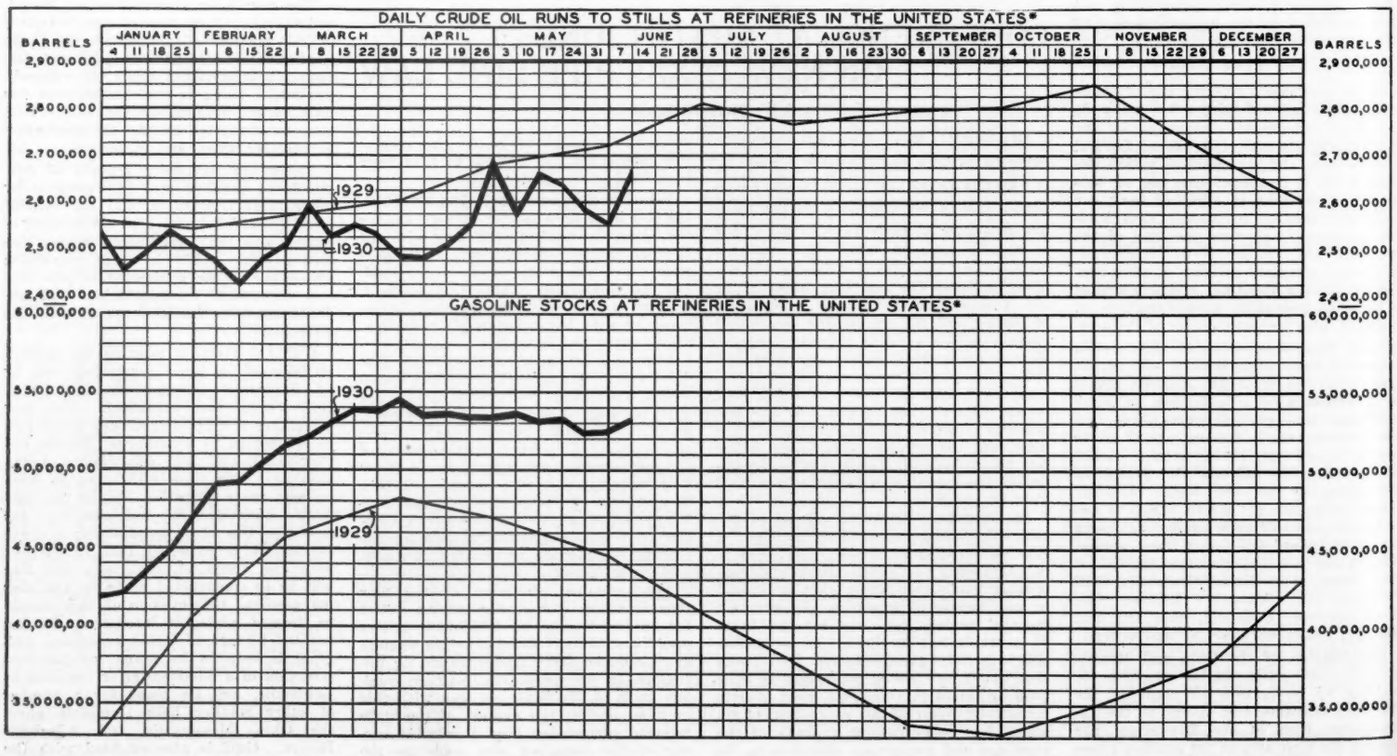
(Continued on Page 154)

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

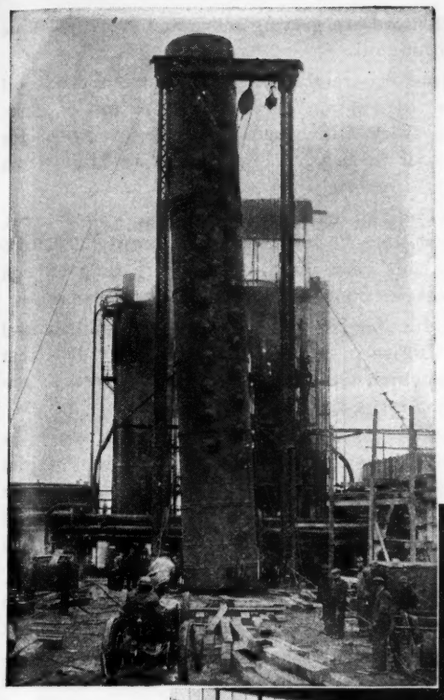
The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending June 14:

	Week ending June 14				Week ending June 7				Week ending January 4			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	502,700	8,544,000	8,635,000	100.0	541,600	9,069,000	8,302,000	100.0	454,857	5,998,000	7,431,000
Appalachian	91.0	87,850	1,727,000	743,000	91.0	81,600	1,785,000	820,000	91.6	75,571	1,282,000	805,000
Indiana, Illinois, Kentucky	99.6	338,700	8,884,000	4,052,000	99.6	327,000	8,347,000	3,964,000	98.6	289,800	5,483,000	3,505,000
Oklahoma, Kansas, Missouri	89.8	296,850	4,820,000	4,649,000	89.8	293,100	4,803,000	4,656,000	87.7	263,428	3,604,000	3,277,000
Texas	90.8	619,600	7,495,000	10,870,000	90.8	582,600	7,631,000	10,440,000	90.7	539,857	6,590,000	13,757,000
Louisiana and Arkansas	96.8	170,150	2,538,000	2,069,000	96.8	165,800	2,470,000	2,083,000	96.8	160,000	2,161,000	4,499,000
Rocky Mountain	93.6	64,000	2,720,000	1,152,000	93.6	58,300	2,772,000	1,142,000	93.3	41,614	2,273,000	973,000
California	99.3	590,150	16,114,000	107,051,000	99.3	621,500	16,380,000	106,982,000	99.3	642,857	14,826,000	109,770,000
Total United States	95.8	2,670,000	52,842,000	139,221,000	95.8	2,671,600	53,257,000	138,389,000	95.4	2,468,285	42,217,000	144,017,000
Texas Gulf Coast	100.0	454,000	5,992,000	7,322,000	100.0	442,500	6,451,000	7,517,000	100.0	429,585	5,579,000	10,792,000
Louisiana Gulf Coast	100.0	118,430	2,116,000	1,188,000	100.0	123,000	2,053,000	1,162,000	100.0	108,514	1,877,000	3,818,000

(1) Per cent refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



Data for 1930 based on weekly reports of the American Petroleum Institute. Data for 1929 derived from monthly reports of the Bureau of Mines, Department of Commerce. Figures for last week not shown in graph but are included in above tables.



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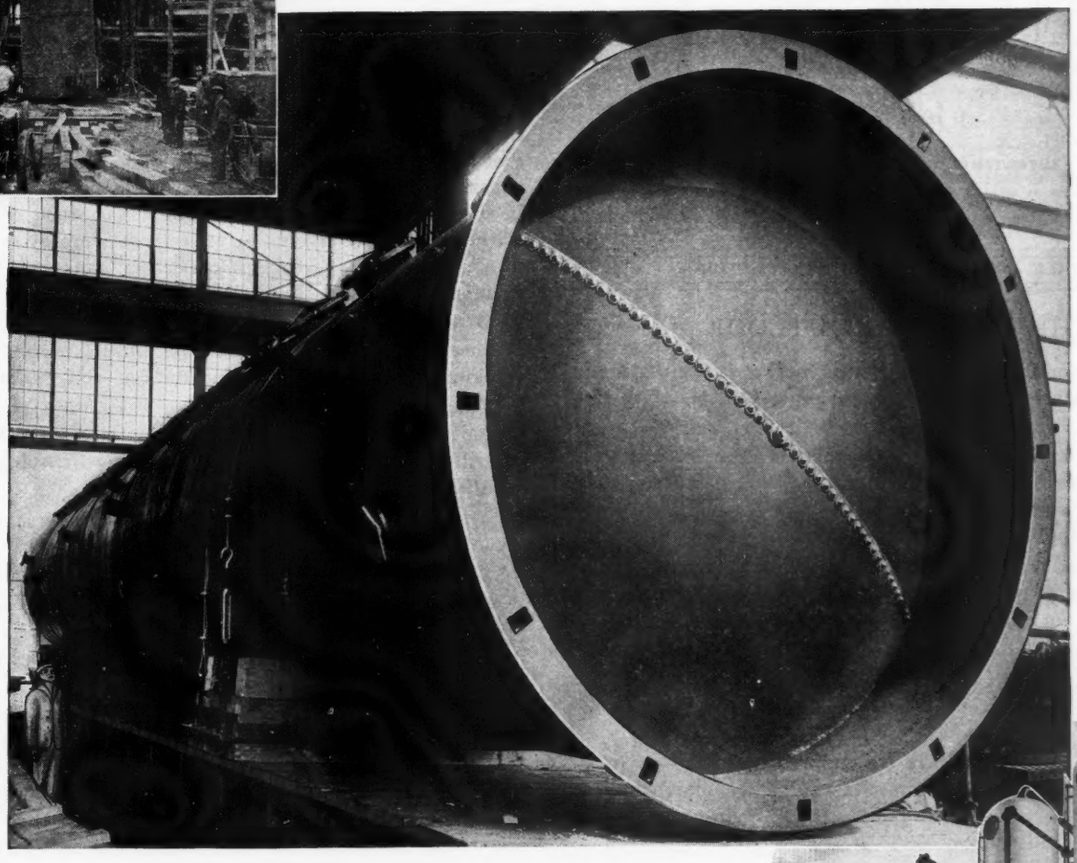

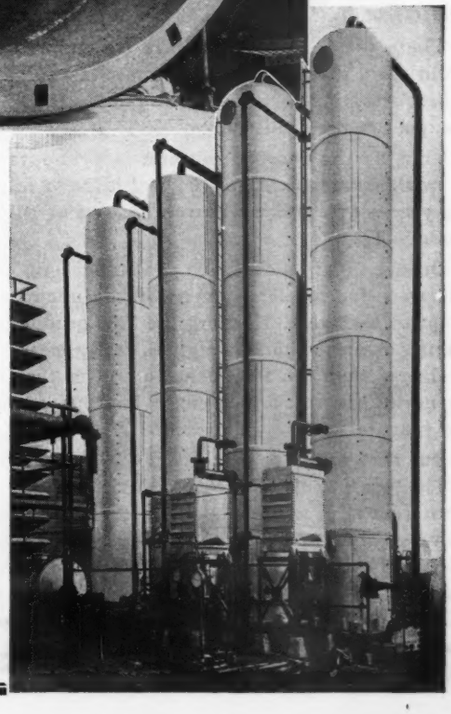

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THE SUMMER'S OUTLOOK

The present condition of the gasoline market is the plain result of an utter failure to reckon with the simple fundamentals of the business.

The industry entered the year tremendously overstocked.

The first concern of any business man in such a situation would be to get rid of some of that surplus which overhung his market threatening to topple over his prices at any moment.

It was not that the danger was not seen. An effort was made to keep down crude production and crude runs to stills to the totals of the past year but this calculation did not go deep enough.

It was overlooked that the demand for gasoline in 1929 exceeded all expectations, due to the record production of motor vehicles, extraordinary economic conditions and an unusual increase in exports.

There was no reason to figure that motor production in 1930 would equal that of last year in view of altered economic conditions and the situation abroad gave no ground for assuming a similar gain in export demand this year.

Thus on the demand side it was over-optimistic to assume that we would have more than a normal increase in gasoline consumption this year—say 35,000,000 barrels instead of the 52,000,000 barrels increase in 1929.

On the supply side crude production and crude runs to stills in 1929 were far too large even for the unexpected increase in consumption that year. Keeping the 1930 production of crude and runs to stills down to the 1929 figures really meant, to start with, a supply larger than the 1929 demand and to that extent offset part of the normal increase that could be counted upon in consumption this year.

But that was only part of it.

The continually increasing efficiency in the manufacture of motor fuel is producing a constantly larger percentage of gasoline to every barrel of crude. A few years ago it was 40 per cent. Now it is nearly 47 per cent and within measurable reach of 50 per cent next year.

More gallons of motor fuel to each barrel of crude run to stills means of course fewer barrels of crude to get the same number of gallons of gasoline.

The explanation is that we are getting more and more gasoline from other stocks than crude oil.

In fact the production of straightrun gasoline from crude oil is now decreasing while there is an increased production of gasoline from cheap cracking stock, which even with the low prices for crude oil in the past two or three years, was out of line, and from natural gasoline which was formerly a waste product.

The combined production of gasoline from these two sources, other than crude runs to stills, will, it is estimated, supply 39,000,000 more barrels of gasoline this year than last, or more than enough to supply a normal increase in consumption of 35,000,000 barrels.

With the gain in production from cracked gasoline and natural gasoline equalling the increase in demand it is clearly evident that last year's runs to stills which were too large for last year's consumption must also be too large for this year's demand.

So that the first mistake this year was in assuming it would be safe to keep runs down to last year's total. That assumption, besides taking no account of altered circumstances in demand, disregarded in part the increase in recovery from cracking stock and natural gasoline which, as has been seen, is sufficient to take care of any normal gain in consumption.

All these factors were placed before the industry repeatedly in these columns and elsewhere, summed up in the simple statement that less crude would be required this year than last. Yet, lured on, perhaps, by a temporary increase in percentage of gain in demand in the early part of the year, which has since disappeared, these warnings and the lessons of experience were disregarded with the result faced today, weakening markets, tank car, tank wagon and even crude.

Of course there have been difficulties. The lack of demand for the heavier ends of crude has led the manufacturers to resort to cracking to dispose of their surplus fuel and gas oils.

The demand for premium gasoline, supplied by cracking, which not only provides better antiknock fuel and gives better control of volatility, has produced the problem of disposing of straightrun gasoline.

These difficulties operate to lessen the demand for crude and must be taken into consideration in runs to stills.

This brings up another aspect. Crude producers, like the refiners, have been striving to keep down their production to last year's total, although this is now beginning to be seen as too large in view of the increasing quantity of gasoline being made from cracking stock and natural gasoline.

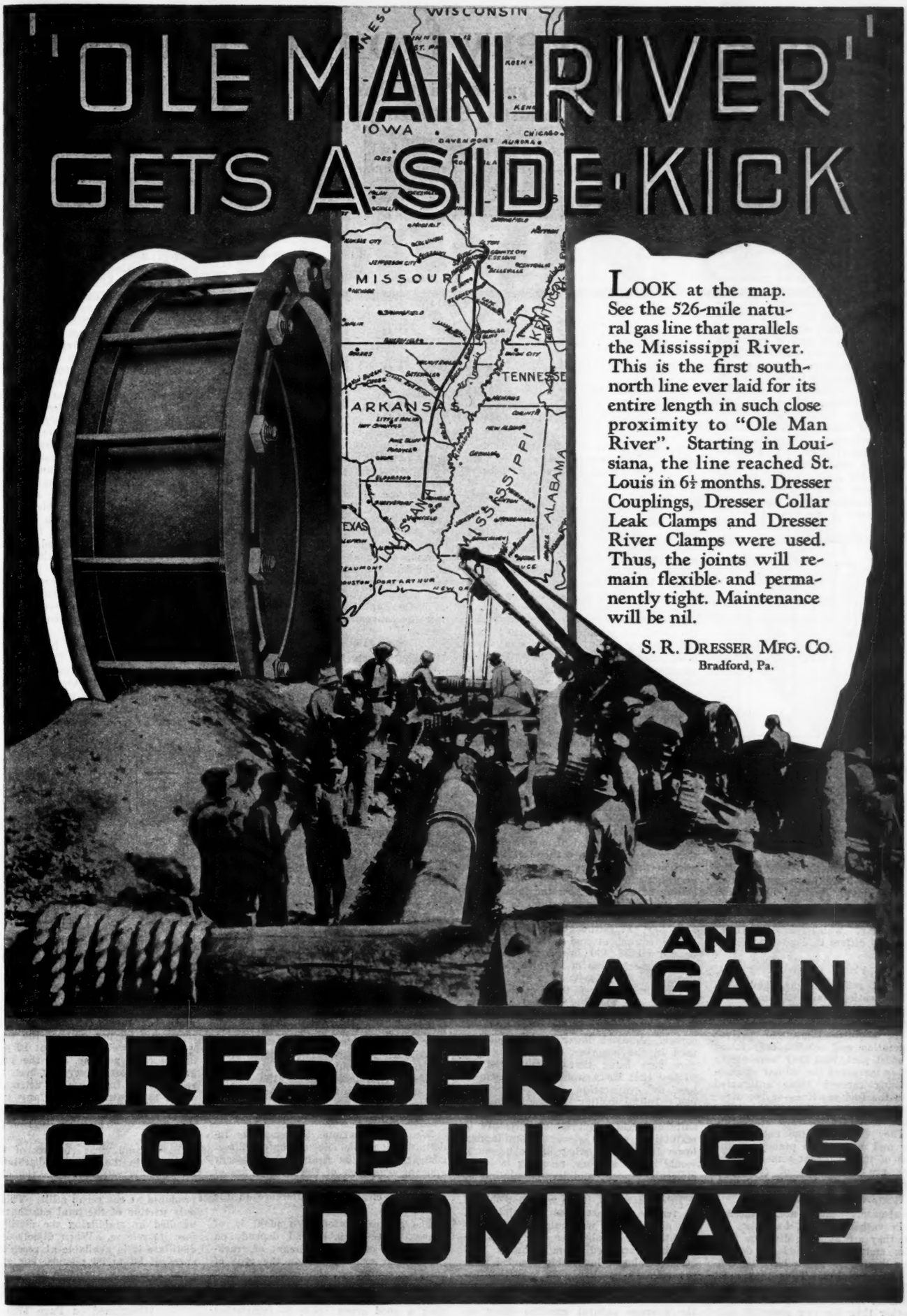
The producers in California and Oklahoma have succeeded in bringing their production into line with demand or thereabouts. In Texas there is still a considerable excess, probably 13 per cent against 4 per cent in Oklahoma. But, in view of the gasoline situation, even strict adherence to last year's production will be too much and will not allow for the much needed and desired withdrawal from stocks which must be had before the industry can have a really stable market.

The situation, though bad, is not hopeless. It can be remedied if right now, at the start of the season of heaviest consumption, the industry will take all these factors into consideration in planning operations for the rest of the year.

An isolated view, dealing with only one aspect, whether it be that of the producer or the manufacturer, will disclose but a part of the picture. Yet all hang together and must share the results either way.

The big point to keep in mind is that, as the Federal Oil Board pointed out, there is but one market for crude—refined products, and that market is being increasingly encroached upon by cracking stock and natural gasoline which cannot be curtailed without flying in the face of economics. The remarkable expansion in natural gas competition with fuel oil is another element that cannot be ignored.

The present oversupply of gasoline threatens the entire industry and the danger can be averted only by the united action of every branch of industry based on deliberate study of the factors from every angle and prompt, appropriate action.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GETS A SIDE-KICK
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MISSOURI
TENNESSEE
ARKANSAS
MISSISSIPPI
ALABAMA
TEXAS
LOUISIANA
LOOK at the map. See the 526-mile natural gas line that parallels the Mississippi River. This is the first south-north line ever laid for its entire length in such close proximity to "Ole Man River". Starting in Louisiana, the line reached St. Louis in 6½ months. Dresser Couplings, Dresser Collar Leak Clamps and Dresser River Clamps were used. Thus, the joints will remain flexible and permanently tight. Maintenance will be nil.
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Gasoline Recovery from Refinery Gas

Need Different Type of Plant Than Used in Natural Gasoline Industry. Stabilizing Unit Described

By O. C. Brewster
Consulting Engineer, Casper, Wyo.

During the past few years thought and research among refiners have been turning to the less obvious sources of loss and inefficiency in the refining of petroleum. Questions of fractionation, elimination of needless rerunning, improvement of cracking operations, the complete revamping of lub oil processes, and other major operations that in the past have completely swamped the refinery technical staffs are being cleared up to an extent that at least lets us begin to see daylight and a sufficient breathing spell has come which has permitted a few inquisitive eyes to search for other less apparent inefficiencies to overcome. The recovery of valuable products from refinery gases has been considered almost simultaneously by a large number of concerns and individuals as being a productive field for investigation and improvement. This movement was given added momentum by the radical advances made in the natural gasoline industry during the past few years. The displacement of the carbon absorption method of gas analysis by the

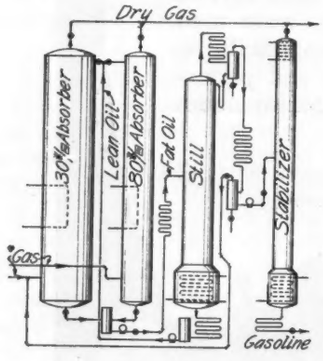


Figure 1—Conventional absorption system for extracting gasoline as used in refineries and natural gasoline plants.

actual fractionation of the gas at low temperatures, the development of superior methods of selective absorption, and the more scientific methods of "weathering," which, as its technology advanced, assumed the more dignified appellation "stabilization," each contributed to the solution of the problem of refinery still gas processing, which, in the final analysis, only differs in degree from that of field gas.

Old Plants Inefficient

Almost all refineries have had some sort of absorption plant to handle wet still gases from the running of crude and from cracking and rerunning operations. When the engineers began to analyze their operation and results, they found for the most part, that they were pretty bad. They measured the volume of gasoline passing through these antiquated plants to the fuel gas line—or the air—and calculated the loss in dollars and cents and found it to be a staggering sum. They turned to the natural gas industry and adopted its practices quite oblivious of the fact that some of these practices are the result of conditions peculiar to the natural gasoline plants.

Require Special Absorbent

Natural gasoline plants are, in the majority, in rather isolated localities, or, at least, they are at some distance from refineries and are operated by departments or companies which have no connection with refining. Thus they must be, as far as possible, self-sufficient, with the minimum inflow and outflow of material, other than the raw material, natural gas. Where the natural gasoline plant is of the absorption type, as most of them built since 1920 are, its process involves the use of a large amount of absorber oil as a tool in the process. Thus, it is of paramount importance to use a material which, in use, will suffer a minimum loss and still provide a high efficiency. Accordingly much research work has been done in setting up the specifications of the ideal absorber oil and in developing equipment to use it to the best advantage. The operation affecting these specifications to the greatest extent is the distillation, in which the extracted gasoline is separated from the absorber oil. In this separation it is of greatest importance that all of the gasoline be recovered from the absorber oil and that none of the absorber oil be lost in the gasoline. Therefore we find that absorber oil is demanded which has an initial boiling point higher than the maximum boiling point of the extracted gasoline, making a clean separation possible. It is, however, advantageous from the point of view of the absorber and the amount of oil circulated to have the average molecular weight of the oil as low as possible. Therefore the endpoint of the oil is made as low as is compatible with a reasonable price for the product and we find a product of narrow distillation range called for, a range of 100° F. or less being common. Since there is very little material in the average gas boiling at over 325° F., the initial boiling point of the absorber oil is usually specified at some point between 350° F. and 400° F., although it requires excellent equipment and skillful operation to use oil of 350 initial without having a material loss of oil into the gasoline.

The limitation of the initial boiling point of the absorber oil, it should be stressed, is a requirement made necessary by the still, rather than the absorber. A much lower initial could be used in the absorber, the limiting feature here being that it must not be so low that there would be appreciable loss by evaporation into the residue gas. Initial boiling points as low as 250° F. could be used with excellent results and where appreciable pressure is maintained on the absorber considerably lower initial, depending on the pressure, would be satisfactory, resulting in lower molecular weight and less circulation of oil required.

In other words, if we were not obliged to remove the extracted material from the absorber oil we could use a heavy naphtha cut as absorber oil. Since the gasoline extracted from refinery still gases is almost invariably blended with the refinery gasoline, this operation becomes entirely feasible, as applied to refineries where it is not practical for the average natural gasoline plant as it does not have a current supply of heavy naphtha. This may appear to be a retrogressive proposal since it is heavy naphtha that the great majority of the old obsolete vapor recovery systems use. The fact that they are not efficient in operation, however, is not the fault of the absorbent but of the equipment and there is no need to condemn the heavy naphtha as an absorbent merely because of the failure of the old absorption plants to do a good job. It will be shown later that a plant properly designed to operate on heavy naphtha shows great economy over the conventional type of absorption plant.

Stabilizing P. D.

One of the chief sources of "wet" gas in the majority of modern refineries is the gas released from the pressure still distillate produced by the cracking units when the distillate, saturated with gas at relatively high pressure, is released into storage. A trend of modern design is the control of this gas at the time of its separation from the distillate to produce a dry gas. This is accomplished by stabilizing the distillate under pressure in much the same way that natural gasoline is stabilized so that the products from the stabilizing unit are dry gas and distillate, which, when cooled and released to atmospheric pressure, is no longer wild and does not produce the large volume of gas which is evolved from unstabilized distillate. This operation avoids the production of wet gas which must subsequently be processed in a vapor recovery system, and, in new plants, obviates much of the gas gathering system formerly necessary. Where this system is used, however, the problem of handling the rest of the gas remains and the writer wishes to propose an amplification of the system to include the handling of the entire gas problem of the plant. As will be pointed out later this method offers many advantages over the field type of absorption plant but cannot compete, particularly in older plants already equipped with costly gas gathering equipment, against the simpler and more economical heavy naphtha absorption system.

Refinery Gas Production

We might continue to generalize indefinitely on this subject, but a direct comparison of the equipment necessary and the operation of the three types of system as applied to a typical refinery will show clearly the difference in the systems.

The gas production of a plant is, of course, quite variable and depends on the type of crude, the amount of cracking and to some extent on the type of cracking equipment, the extent to which coking is employed, and so forth. The gas production of a typical plant running a good green crude to completion is outlined in Table 1. The crude is such that about 30 per cent straightrun gasoline is produced and cracking is employed to such an extent that another 30 per cent of gasoline is produced. Approximately 20 per cent of the crude, in the form of residuum, is coked for the production of additional charging stock for the cracking units.

TABLE 1—GAS PRODUCTION PER BARREL OF CRUDE

	Crude stills	Coke stills	Dry gas from cracking	P.S. dist. release gas	Auto tar plant	P.S. dist. rerun stills	Total
Cubic feet gas	7	26	100	37	20	10	200
Gravity	1.76	1.11	0.825	1.40	0.975	1.80	1.07
Weight-pounds	0.938	2.295	6.296	3.952	1.488	1.373	16.342
Methane:							
Vol. %	5	47	68	18	53	4	49.13
Cubic feet	0.35	12.23	68.00	6.67	10.60	0.40	98 25
Weight-pounds	0.015	0.514	2.850	0.280	0.445	0.017	4.121
Ethane:							
Vol. %	12	15	15	24	20	10	16.81
Cubic feet	0.84	3.90	15.00	8.88	4.00	1.00	33 62
Weight-pounds	0.066	0.308	1.185	0.702	0.316	0.079	2.656
Propane:							
Vol. %	30	16	11	31	16	30	17.46
Cubic feet	2.10	4.16	11.00	11.46	3.20	3.00	34.92
Weight-pounds	0.244	0.482	1.275	1.327	0.371	0.348	4.047
Butanes:							
Vol. %	34	9	4	18	8	35	10.23
Cubic feet	2.38	2.32	4.00	6.67	1.60	3.50	20.47
Weight-pounds	0.362	0.353	0.608	1.013	0.243	0.532	3.111
Pentane and heavier:							
Vol. %	19	13	2	9	3	21	6.37
Cubic feet	1.33	3.38	2.00	3.33	0.60	2.10	12.74
Weight-pounds	0.251	0.638	0.378	0.630	0.113	0.397	2.407

We may assume that with proper stabilization we can use about 40 per cent of the butanes and still have a blended gasoline with a distillation recovery well above the 95 per cent usually specified and with satisfactory characteristics with respect to storage losses. (This is, of course, a variable factor affected by the amount of purchased natural gasoline, which usually runs about 25 per cent butane, used in blending, and the 40 per cent figure is merely taken for the purpose of this discussion.) We may thus recover from the total gas shown in Table 1 about 1.251 pounds of butane and 2.4 pounds of pentane, making a total of 0.7 gallon per barrel of crude run. For a 10,000-bbl. refinery this amounts to the considerable total of 7,000 gallons per day, worth in the neighborhood of $400 when its fuel value, of which the plant is deprived, is deducted. When it is considered that the older style plants recover less than half of this, besides producing a wilder product due to no stabilization resulting in greater storage losses, it is seen that the revamping of the vapor recovery system is well worth while.

The total gas may be divided into three general classes. The first consists of the "dry" gas from the cracking units, and is the gas separated from the pressure distillate at receiver pressures, 80

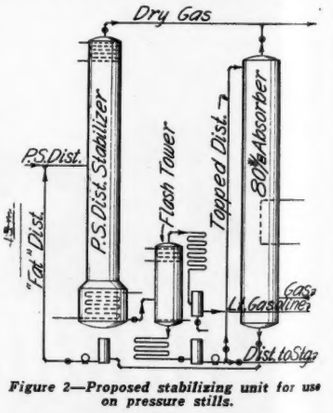


Figure 2—Proposed stabilizing unit for use on pressure stills.

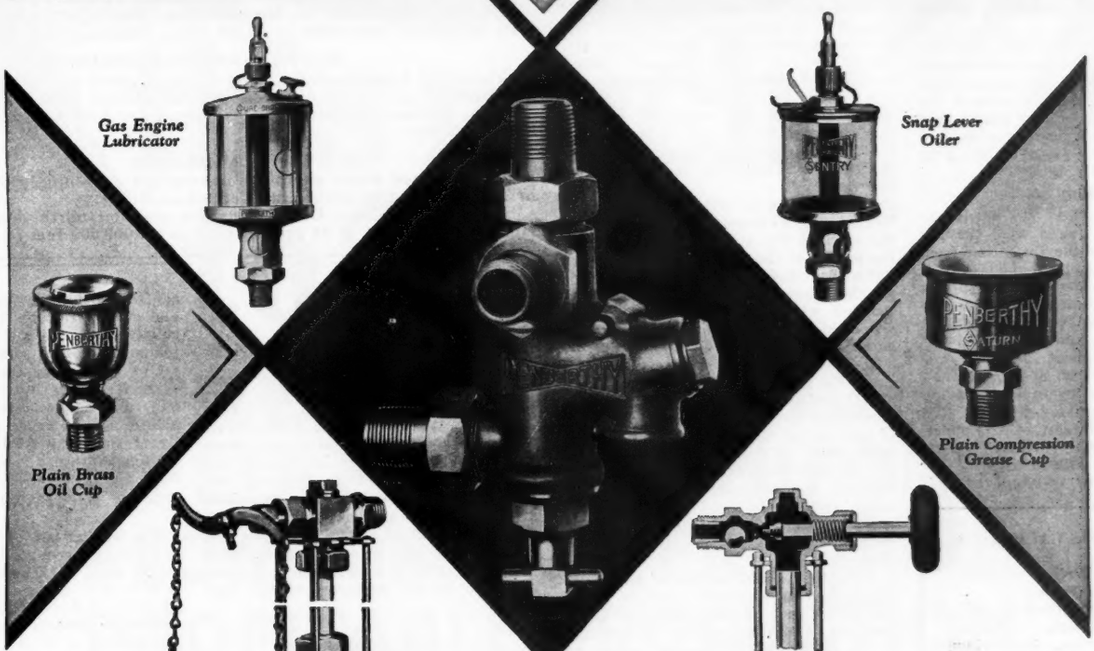
to 100 pounds, and is available at this pressure. It is seen that in volume it represents 50 per cent of the total gas while it only contains about 16 per cent of the total pentane. In the past this gas has almost universally been run directly to the fuel lines, no attempt being made to recover from it any gasoline. Many plants, however, are now processing, or at least planning to process, this gas.

The second class consists of the gas dissolved in the pressure distillate, part of which is released when the distillate is run to storage and part of which is produced at the rerun stills. This is the only portion of the total gas that can be handled by stabilizing the distillate before its release. When dissolved in the distillate it is available at receiver pressures of 80 to 90 pounds, but after release it is only available at atmospheric pressure. This portion of the gas represents about 23.5 per cent of the total

(Continued on Page 178)

PENBERTHY PRODUCTS

PREDOMINATE


Gas Engine Lubricator
Snap Lever Oiler
Plain Brass Oil Cup
Plain Compression Grease Cup
Navy Type Liquid Level Gauge
Safeguard Automatic Liquid Level Gauge
Screw Plunger Grease Cup
Spring Compression Grease Cup

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SECOND FIRE OCCURS AT RUMANIA WELL; STANDARD MAY TAKE IT OVER

By L. G. E. Bignell
Petroleum Engineering Editor

In the June 1 issue of "Moniteur du Petrole Roumain" just received there is a report of the conditions at test No. 160 of the Romana-Americana in the Moreni Field, Rumania, which describes the work done at this well in fighting the gas fire and details of the gas explosion mentioned in the article carried in The Oil and Gas Journal, June 12.

As translated this report states that the work under the direction of Engineer Vasile Lazar in the long tunnel as described in the article referred to above progressed quite satisfactory and the 18, 14 and 10-inch casing was drilled with only minor troubles and the work completed May 27. The only difficulty experienced in drilling these three strings of casing was the breaking of some gear teeth in the driving mechanism in the boring tool.

Upon completion of the hole into the 10-inch casing heavy pumps were started and a mixture of baryte mud was pumped into the well and evidently entered the 6¾-inch flow string for it is stated that after about three hours pumping the fire showed decided signs of diminishing in size and was steadily dying.

Another Fire Starts

At this time another phenomena occurred and it was found that the gas had broken through the formation from test No. 160 to an old abandoned well known as No. 82 located about 10 meters distant and was escaping to the surface through this old well, and immediately it caught fire and burned fiercely. The well No. 82 is about 1,575 feet deep and has long since been abandoned. No explanation is given as to how the gas made its escape from the 6¾-inch flow string in well No. 160 but as it is understood that this inside string of casing has been worn very thin in the last year by the constant flow of sand that has accompanied the gas and it is not hard to imagine that the walls were so thin that they ruptured when the heavy mud began to pack in this pipe.

Following this disaster, which occurred on May 27, the 8'x8' cemented tunnel described in last week's article in The Oil and Gas Journal filled with gas. Whether this gas came from leaks around the steel castings clamped on the 18-inch casing to hold the drilling tools used in boring through the various strings of pipe, or entered the tunnel from the caved and broken ground well, is not known, and the Rumanian engineers seem to be divided in their opinion on this point.

On May 28 this gas exploded at the mouth of the tunnel and three engineers, F. Risdorfer, director of the Ministry of Industry; A. Budurouici, director of the Romana-Americana at Moreni, and Mr. Busila of the "Astra-Romana" (Shell Co.) and 29 workmen were injured and one workman was killed.

The force of this explosion wrecked the cemented tunnel and it is reported that the gas has since been burning at the tunnel's mouth and making a flame 150 feet high.

With the fire at well No. 82, which is located only 10 meters (39.37 feet) from the original fire and this huge flame at the mouth of the tunnel conditions were indeed bad, and on May 29 a meeting of all the engineers of the Moreni district together with the government engineers was held and conditions were fully discussed.

It is reported that the Romana-Americana Co. (subsidiary of the Standard Oil Co. of New Jersey) has been given permission to again take over the work of putting out this fire and they propose to attempt to do this by attacking it at the mouth of the well where it is still burning, but not as violently as previously, and try to flood the crater with water and heavy mud and kill the gas well which will also put out the original fire.

With the partial success of the methods devised by Engineer Lazar in pumping heavy mud into the hole, it is hoped that the American engineers in charge of the operations for Romana-Americana Co. can subdue this giant gasser, but they will still be faced with the problem of putting out the fires that have since started at the tunnel's mouth and at well No. 82, so their problem is one presenting many grave responsibilities.

THE OIL MAN'S CALENDAR

June 16-25—Berlin, Germany, World Power Conference.

June 18-25—Atlantic City, N. J., Mechanical Division, American Railway Association, Auditorium.

June 23-26—San Francisco, Calif., convention, American Railway Association.

June 23-27—Atlantic City, N. J., annual meeting, American Society for Testing Materials.

June 25—New York, board of directors, American Petroleum Institute, A. P. I. headquarters.

August 4-9—New York, International Exposition of American Import Trade, Grand Central Palace.

September 2-4—Toronto, Ontario, North American Gas Tax Conference, King Edward Hotel.

September 8-12 — Cincinnati, Ohio, Eightieth meeting, American Chemical Society, Hotel Gibson.

September 17—Columbus, Ohio, Ohio Petroleum Marketers Association, Deshler-Wallick Hotel.

September 17-19—Atlantic City, N. J., National Petroleum Association, Hotel Traymore.

September 29-October 4—Pittsburgh, Pa., petroleum section, National Safety Council.

October 4-11—Tulsa, Okla., International Petroleum Exposition and Congress.

October 6-11—Washington, D. C., Sixth International Road Congress.

October 14-16—Kansas City, Mo., convention, Big Four State Jobbers.

November 2-5—St. Louis, marketing congress, Independent Oil Men of America, Statler Hotel.

November 10-13—Chicago, Eleventh anual meeting, American Petroleum Institute, Stevens Hotel.

MAGNETIC STORM

Tucson observatory of the United States Coast and Geodetic Survey report a moderate magnetic storm June 12 and 13 as follows:

"Storm began twelfth one (7 p. m. central standard time) moderate. Ended thirteenth fourteen (8 a. m. central standard time)."

Tucson observatory of the U. S. Coast and Geodetic Survey report severe magnetic storm started 10 a. m. (C. T.) on the 15th. and ended at 8 a. m. (C. T.) on the 17th. Their telegrams are as follows:

"Storm began fifteenth sixteen. Severe."

"Storm ended seventeenth fourteen."

NEW OIL DECREE IN MEXICO

NEW YORK, June 16.—President Rubio of Mexico has issued a decree ordering the ministry of industry, commerce and labor to make a thorough study of various cases and ascertain the legality of all leases before granting concessions or contracts for any portion of national petroleum reserves. The decree supplements the presidential measure of November, 1928, giving the general bases for granting oil concessions and stipulates that all such concessions must henceforth have the approval of the president.

High Spots in Field News

GULF COAST

First successful oil producer in 6,400-7,700-foot sand at Refugio, flowing 500 bbls.

SOUTHWEST TEXAS

Bruner Field gets 20,000-bbl. well, one of biggest ever completed in Southwest Texas.

OKLAHOMA

Wild well in Oklahoma City Field with gas flow of 250,000,000 feet. Floods slow up north end.

WEST TEXAS

Gas showings in Cranfill-Gulf well, Crane County, encourage further tests. Penn Pool proration discussed.

KANSAS

Western Kansas counties continue active. Plan to drill 80 tests in southwestern counties. Voshell potential 45,000 bbls.

NORTH TEXAS AND PANHANDLE

Southwestern Callahan County test flowed 125 bbls. Decrease of over 5,000 bbls. in Gray County. Graham Pool deep tests seem ill fated.

ROCKY MOUNTAIN AREA

Biggest well drilled in New Mexico, Shell Corp.'s producer in Hobbs area, estimated from 8,000 to 12,000 bbls. Amerada well may be duplicate.

NORTH LOUISIANA-ARKANSAS

Three dry holes in Holly district, but gas area probably extended 3 miles southwest of oil wells. Arkansas and Mississippi quiet.

Hope Production Co. completes largest gas well in Monroe Field, making 53,500,000 feet.

CALIFORNIA

Shell's Weed Patch well near Bakersfield exceedingly promising, may be in Temblor sand so prolific at Kettleman Hills.

General Petroleum Corp. brings in well on north dome of Kettleman Hills for 4,500 bbls. of 54 gravity oil and 100,000,000 feet of gas at 7,691 feet.

Late Fields

EAST CENTRAL TEXAS

FORT WORTH, Tex., June 17.—Humble Oil & Refining Co.'s No. 1 Carroll in the William Daniels Survey, Van Zandt County, East Central Texas, which had been running high on formations, logged a lime cap from 2,819-20 feet with a showing of oil. It went into shale at 2,820-21 feet and encountered an oil sand from 2,821-25 feet, where it is now shut down to run 6⅝-inch casing. This practically proves a mile and a quarter extension to the northeast of the Van Pool.

GULF COAST

HOUSTON, Tex., June 16.—The third deep producer on the southeast side of the old Evangeline or Jennings Field of Acadia Parish, Louisiana, was completed over the week-end by Yount Lee Oil Co. with the bringing in of its No. 8 Housierre-Latrielle. The well from a sand at 7,430 feet flowed an estimated 1,800 bbls. of pipe line oil in the first 24 hours but at the end of the first day it was increasing its flow steadily.

The new well is the second deepest producer on the Gulf Coast, although there is very little difference in the depth of the sand in it and in Nos. 6 and 7 Houssierre-Latrielle, the two other deep wells completed southeast of Jennings Field. All three of these deep producers are in Section 47-9s-2w, nearly a mile southeast of the old field. No. 8 is 500 feet due east of No. 6, the first deep well. The latter was completed a year ago this month flowing 2,500 bbls. daily and still is flowing 110 bbls. daily and supplying enough gas for 10 boilers. The joints of 5⅜-inch screen are in the hole, set at 7,430 feet. Bottom of the hole is 7,439 feet. The initial production of 85 bbls. an hour was through two chokes, a three-eighths and a quarter inch. Gravity of the oil is 35.4 degrees, corrected for temperature.

KANSAS

The wildcat test of Tatlock and others in Reno County made 72 bbls. in 48 hours ending June 16. The test is locted in the C NW NW Section 17-25-4w. The pay horizon was found at 3,606-11 feet.

Another wildcat test in Reno County showing oil is W. C. McBride, Inc. No. 1 in the SW cor. NE SW Section 36-23-5w. It made 5 bbls. of oil and 5 bbls. of water per hour from the chat. The top was found at 3,386 feet, and the pay at 3,410-18 feet.

In the Voshell Pool the Gypsy Oil Co.'s No. 2 in the SW cor. Section 34-20-3w extends production one location. The well found the Wilcox sand at 3,360-70 feet, where it swabbed 407 bbls. in 11 hours and after drilling deeper to 3,372 feet it made 565 bbls. in 20 hours.

W. C. McBride, Inc.'s wildcat test in the eastern part of McPherson County, located in the NE cor. SW Section 30-19-1w, found the top of the chat at 2,947 feet, and pay at 2,978-3,041 feet. It flowed 200 bbls. in 24 hours, 25 per cent water.

McPherson Oil & Gas Co. and others' No. 1 in the C SE Section 10-19-2w, a wildcat near the Decker gas pool, in McPherson County, was opened up for a

(Continued on Page 160)

SCORE CARD ON OIL PRODUCTION

Below is shown allotted average daily production in the United States, April to December, inclusive, suggested by the Committee on Economics of the Federal Oil Conservation Board, and the actual dialy average production during the week ending June 14:

	Allotted Bbls.	Actual Bbls.	Over Bbls.	Under Bbls.
California	610,000	603,250	.....	6,750
Oklahoma	655,000	666,880	11,880	.....
Texas	750,000	840,329	90,329	.....
Other fields	480,000	468,016	.....	11,984
Total	2,495,000	2,578,475	102,209	18,734

Net daily overproduction 83,475 bbls.

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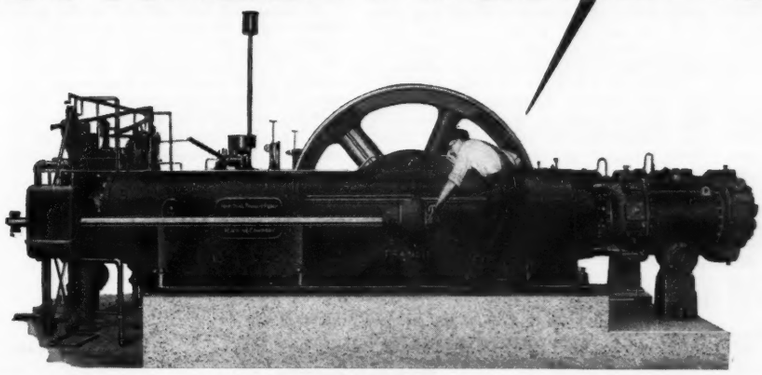
RELIABILITY-UNIFORM
FLOW-CONSTANT PRESSURE
PROFITABLE PRODUCTION



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OIL CITY - PENN.

Big Oil Wells and Gassers Continue

Wild Well in Oklahoma City With Gas Flow of 250,000,000 Feet. Floods Slow Up North End of the Field

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oil production in Oklahoma for the week ending June 14 was estimated at 666,700 bbls., the same amount as the previous week. With the potential of the State estimated at 1,250,000 bbls. the general curtailment is at least 50 per cent of the potential.

Saturday night's rain storm slowed down operations in the Oklahoma City Pool, almost every drilling well in the river bed in the north end of the pool, being shut down because of the high water. Most of the new operations in other parts of the field were down on account of impassable roads.

Water was over almost the entire north end in Sections 1 and 2-11-3w, only those on high ground were active. Tom Slick Oil Co. and others' well in the SE cor. SE NW, Section 1-11-3w, was opened for its initial gauge and made 4,798 bbls. in 12 hours. Same operator's No. 1 Carter, in the S half NE SW, Section 1-11-3w, made 9,891 bbls. the first 10 hours. The well in the SE cor. NW, extended production to the north one location.

Sinclair Well Blowing Wild

Sinclair Oil & Gas Co.'s No. 6 Vencl, C SE NW SE, Section 31-11-2w, was blowing wild. It blew in Monday morning and was estimated at 250,000,000 feet of wet gas. The operators were shutting the well in when the connections were blown away. It is producing from the Wilcox sand at a total depth of 6,735 feet. The sand cut out the master gate valve allowing the well to get beyond control. All the operations in the south end of the field were also shut down.

The same company has started work on building five 80,000-bbl. storage tanks in the east part of the pool.

Sinclair Oil & Gas Co. completed No. 9 School Land 54, in the SW cor. NW NE, Section 36-11-3w. It was opened for its initial gauge and made 205 bbls. the first 15 minutes. The total depth is 6,669 feet.

The Indian Territory Illuminating Oil Co.'s No. 1 fee, C SE SE, Section 24-11-3w, the discovery well in the South Oklahoma City Pool, was opened for production June 15 and made 388 bbls. of oil and 2,280 bbls. of water on the gas lift. The well was completed in December, 1928, and has made more than 1,000,000 bbls. of oil since that time. Same operators' No. 1 M. Fuzzell, SW cor. NW, Section 19-11-2w, has the largest recovery of oil in the Oklahoma City Pool. It made 1,000,000 bbls. of oil the first seven months. It was opened June 15 and made 1,926 bbls. of oil and 10,425 bbls. of water in 23 hours flowing.

Oklahoma County is one of the active wildcat districts in the State. Two of these wildcats found showings of oil and gas during the week. One of the interesting wildcats is the Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 1 Dill, SE cor. NW, Section 17-13-3w. A showing of oil was found and indicates the possibility of a new producing area in the northern part of Oklahoma County. The other wildcat test is the Magnolia Petroleum Co. and Ramsey Petroleum Co.'s No. 1 Johnston, NE cor. SE, Section 35-13-3w, which also found a showing of oil during the week and was cemented at a total depth of 6,520 feet.

Town Lot Drilling Continues

The development of the town lots within the limits of Oklahoma City got beyond control of the municipal government during the week when new tests were started without drilling permits. Operators are drilling on town lots without the city's authority according to a recent court decision.

On the city-owned Lincoln Park, inside the city limits, Wirt Franklin Petroleum Corp. has agreed not to drill more than one well until forced to by offsets, or until the development of the south field is ended. It will be some time in October before the present test is deep enough to reach the pay horizon.

The first part of the week new producers were found in the north and the south ends of the field. Tom Slick Oil Co. and Atkinson's No. 1 Dunivan, on a small plot in the SW cor. SE NW, Section 1-11-3w, in the north sector of the pool, was completed as a huge producer. It first flew over the top of the crown-block, damaging the rig. The first hour's gauge was 1,024 bbls., and the gas volume was estimated at 60,000,000 feet per day. It made 13,482 bbls. the first 16 hours. The total depth of the well is 6,454 feet. The producer was bailed down several days ago but was shut in until the wind was in a safer direction. On account of Oklahoma City lying to the north and west of the well caution was necessary to prevent the gas from spraying oil in towards the city.

In the south end of the pool the Sinclair Oil & Gas Co.'s No. 5 Vencl, SW cor. NE SE, Section 31-11-2w, blew in about the same time and was shut in at that time after showing considerable gas. The total depth was 6,675 feet, and it was believed that the well would blow itself in deeper and later change to oil. It was estimated to be making 50,000,000 feet of gas and additional separators were being erected. The first hour's gauge before being shut in was 28 bbls. of oil.

Heenan & Coe's No. 2 Cunningham was opened for a production gauge after being shut in for several days. The well first blew in a few days ago and broke its connections after cleaning out. The total depth of the well is 6,420 feet. The first 30 minutes' gauge was 545 bbls. and it made 9,355 bbls. in 16 hours and an estimated 20,000,000 feet of gas.

Coline Oil Co.'s No. 11 Olds, NW cor. SW NW Section 24-11-3w, blew in during the early part of the week after bailing several hours. Its flow died down later without putting any oil into the tanks. Same company's No. 9 Olds, SE cor. SW NW Section 24-11-3w, is being drilled deeper and was bailed down but failed to clean itself.

A wildcat test north of the Oklahoma City Pool, being drilled by the Prairie Oil & Gas Co. and Tom Slick Oil Co., No. 1 Dills, SE cor. NW Section 17-13-3w, had a showing of gas in the Oswego lime at 6,112-6,220 feet and was drilling deeper at 6,290 feet. The showing of gas was noticed through the rotary mud.

East of the south Oklahoma City Pool, the Ryan Consolidated Petroleum Corp.'s No. 1 Lawton, NE cor. NW Section 3-11-2w, a wildcat several miles east of the production in the pool, has resumed drilling after being bailed down to 6,558 feet, where a showing of oil was found. The test was reported to be in the Hunton lime and was drilling deeper at 6,600 feet. The checkerboard lime was found at 6,405 feet.

J. F. Cunniff, trustee, and Pandem Oil Corp.'s No. 1 St. Joseph Orphanage, SE cor. NE SE Section 17-12-4w, cored a sandy lime at 6,515 feet, with nothing showing. The hole is caving and part of the core was lost.

An Enormous Gasser

One of the largest gas wells in the Oklahoma City Pool was completed in the north end of the field by Tom Slick Oil Co. and others' No. 1 Dennis, NE cor. SE SE Section 1-11-3w. It was opened for about 10 minutes and was estimated at 210,000,000 to 225,000,000 feet per day. It was reported to be dry gas. The well is bottomed in sand at a total depth of 6,467 feet. Two separators each with a capacity of 110,000,000 feet of gas were crowded. Four outlets from the separators were unable to handle the flow, and the well was shut in. The well is being reconditioned and extra outlets are being installed at the separators to handle the huge volume of gas before an actual gauge is taken.

An important test and one of the most interesting in the field is the Wirt Franklin Petroleum Corp.'s No. 1 Wright, NE NE NW Section 2-11-3w. It cored a showing of oil and gas in sandy lime and sand at 6,548-63 feet. This well has been showing oil and gas for more than 150 feet, and is regarded by some to be a producer. It is believed it will be drilled deeper before it is bailed down and a production test made.

The Oklahoma City Pool has apparently been defined to the southwest by the Sinclair Oil & Gas Co.'s No. 2 School Land 67, SE cor. NE SE, Section 36-11-3w, in the southern part of the field. The well made 3,795 bbls. of oil and about 1,200 bbls. of water from the Wilcox sand at 6,725-58 feet. It is believed the water is coming from the bottom of the hole. The well is located less than a quarter of a mile north of the Cleveland County line. Two other wells in the Oklahoma City Pool were showing water from the sand. The middle of the week Indian Territory Illuminating Oil Co.'s No. 1 C. E. Trosper, NE cor. SE, Section 11-11-3w, in the heart of the pool, was making 3,000 bbls. of water daily and some reports are that it has been making water for some time. Same company has a well on its Werner-Farley lease that is making water in the sand. It was recently drilled deeper and flowed 456 bbls. of oil and 196 bbls. of water on the gauge of June 12.

In Southern Oklahoma

J. H. Hudson and others' No. 1 Fulton, NW cor. SE SW, Section 23-2s-2w, Carter County, almost a mile southwest of production in the old Hewitt Field, will be drilled deeper. It is now shut down at 4,000 feet. Magnolia Petroleum Co. is starting up on its wildcat southeast of the Tatum Pool. The test is No. 1 Harmon, NW cor. SW, Section 28-1s-2w, Carter County. It is one of the few wildcats starting in the southern part of Oklahoma at this time.

Tests in Payne County

New drilling tests in Payne County were expected to reach the pay in a few days. The discovery well drilled on a community block, Reiter-Foster Oil Corp. and others' No. 1 Finnell, C NE NW, Section 8-19-1w, is making about 280 bbls. a day, pinched, from sand at 5,830-37 feet. The potential production of the well is 820 bbls. Same operators' No. 1 Rule, C NW NE, Section 8-19-1w, was drilling at 4,100 feet, and No. 1 R. Finnell, C SE SW, Section 5-19-1w, was drilling at 3,200 feet. Minnehoma Oil Co.'s No. 1 Shadel, Section 7-19-1w, was drilling at 2,500 feet. A wildcat in the western part of the county, Tidal Oil Co. and Gardner Petroleum Corp.'s No. 1 Edwards, C SE NE, Section 13-19-1w, was drilling at 4,300 feet.

Activity in Wanette Area

The Wanette-West Asher Pool, in southern Pottawatomie County, has four producing wells with a potential of 7,000 bbls. a day. These wells are being curtailed to 25 per cent of potential. Another test expected to be completed in a few days is the Prairie Oil & Gas Co.'s No. 1 in the SW cor. NW NW, Section 23-6-3. It made two flows of oil of which no gauge was taken from a total depth of 3,475 feet. The hole was caving and the casing may be lowered. Twin State Oil Co.'s No. 1 in the NE cor. SE, Section 22-6-3, cored at 3,570-80 feet with nothing showing, and at 3,580-84 feet, where it is now fishing. The discovery well and the latest well completed both owned by the Payne Drilling Co. and Bullock made a total of 1,445 bbls. on the gauge of June 13. Both of these wells are being curtailed according to the proration agreements.

The discovery well has increased its production after the casing was ripped again. New wells in the pool have made almost double the amount of production the discovery well made on its initial gauge.

New pipe lines are being surveyed into the area. The Texas Company is planning a new pipe line from the old Asher

(Continued on Page 133)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Cleaning out 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	Rigging up standard tools 4,660 ft.; cleaning out.

BECKHAM COUNTY

Ray Johnson and J. R. Cuniff's No. 1 Brower, C NW Sec. 29-10-22w	Drlg. 2,310 ft.
Producers Exploration Co.'s No. 1 Sidell, SE cor. SW SW Sec. 17-9-22w	Shut down 2,402 ft.
Carson et al's No. 1 Danby, SW cor. SE NE Sec. 20-8-22w	Shut down 1,575 ft.

BLAINE COUNTY

Lowen et al's No. 1 Unknown, NW cor. SW NW Sec. 17-16-11w	Spudded and shut down.
Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 12-19-10w	Drlg. 3,284 ft.

CADDO COUNTY

W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w	Shut down 3,394 ft.

CLEVELAND COUNTY

Harris et al's No. 1 Highbee, SE NW Sec. 20-6-1	Drlg. 6,110 ft.
Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w	Shut down 3,130 ft.

COAL COUNTY

A. M. Van Orden's No. 1 Jamison, SE NW Sec. 31-1-9	Shut down 1,050 ft.
Blackwell O. & G. Co.'s No. 1 L. Jackson, NW cor. Sec. 26-3-9	Location.
W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e	Shut down 2,975 ft.

COMANCHE COUNTY

V. Wright's No. 1 Indian Land, SE SW Sec. 29-2-9w	Swabbed 4 bbls. 1,920-34 ft.; shut down; total depth 2,018 ft.

(Continued on Page 174)

Left to Right—Paul Taylor, Pipe Racker; E. M. Rogers, Fireman; E. G. Hulsey, Backup Man; H. R. Boughner, Floorman; W. O. Taylor, Derrick Man; Earl Henry, Titusville Service Man; C. C. Callan, Superintendent of Drilling for Wilcox; J. M. Taylor, Afternoon Driller; G. E. Hartsell, Morning Tower Driller

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TITUSVILLE OIL FIELD EQUIPMENT

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Western Kansas Continues Active

Plan to Drill 80 Gas Tests in Southwestern Counties. Voshell's Potential 45,000 Bbls. New Productive Spots

By W. A. Spinney
Staff Correspondent, Kansas Fields

New activities in Kansas during the week show a small increase over the previous week's reports. The State's production had a small decline for the week ending June 14. New operations show a total of 29 for the week. Greenwood and Stevens Counties had seven each, Butler County had four, Marion and Dickinson Counties each had two, while there were single locations in Reno, Edwards, Woodson, Cowley, Washington, Ellis and Rush Counties.

Some express the opinion the next major producing area may be found in Rice County. The wildcat tests surrounding the Schurr Pool, are finding the formations regular, compared to the producing wells in Section 21-20-10w. Should commercial producers be found at these wildcat locations the area will then be considered one of the major producing counties of the State.

Another oil and gas area was opened in McPherson County during the week by the McPherson Oil & Gas Co. and others' No. 1 Robinson, in Section 10-19-2w, in the eastern part of the county. It flowed oil into the slush pit after drilling itself into the chat. The well was opened later and made 30 bbls. of oil in 15 minutes against a back pressure of 700 pounds. It was estimated to be making 14,000,000 feet of gas. The top of the chat was found at 2,958 feet. The new well is located about 6 miles north of the Ritz Pool, and southeast of the Decker gas field. It was being drilled as a west extension to the gas area when the oil was unexpectedly found. The nearest oil production is the Mid-Kansas Oil & Gas Co.'s No. 1 Pitts, in Section 2-19-2w, about 1½ miles northeast, which was making about 120 bbls. a day from the chat horizon.

Voshell's Potential 45,000 Bbls.

The gauge of the Voshell Pool, in McPherson County on June 14 was 22,790 bbls. from 68 wells. The curtailment in the pool is limited to the pipe line capacity. The estimated potential production of the pool is 45,000 bbls. a day.

North of the Ritz Pool, in McPherson County, McBride, Inc.'s No. 1, NE cor. SW, Section 30-19-1w, a wildcat, was flowing 25 bbls. an hour, but cutting 20 per cent. The well is now shut down until additional storage can be erected and a treating plant installed. The oil was found in the chat at 2,947-3,007 feet.

Gas in Pratt County

Wilcox Oil & Gas Co.'s wildcat test in Pratt County had a showing of oil and gas in the Kansas City lime. The test is located on a block in the northwestern part of the county and is No. 1 Bappin, SW cor. NW, Section 7-26-15w. It is estimated to be flowing about 1,500,000 feet of gas and spraying oil from the Kansas City lime at 3,870 feet. The oil showing was soon exhausted but the gas was reported to be holding steadily. Many express the opinion it is the largest showing of gas yet found in Pratt County. The 8-inch casing was being landed at 3,890 feet, and the test was expected to resume drilling.

Phillips Petroleum Co. added a new producer to the Ellis County area which is believed to be one of the largest completed in the county. The well is located in the Shutts Pool, northeast of Hays. The new well is also one location north of the discovery well and is No. 1 Horn, NE cor. SW, Section 5-12-17w. It is estimated to be a 700-bbl. well at 3,633-40 feet. It was swabbed 18 hours and yielded 585 bbls.

Reno County is one of the active areas in the State at the present time. A new wildcat test is starting in the northern part of the county by Alco Royalty Co. Reynolds and Hinkle in the C SE, Section 16-22-7w. It is located on the north bank of the Big Arkansas River. The area has been core drilled.

The probabilities were good for J. H. Tatlock, Shell Petroleum Corp. and others' No. 1 Tonn, in Section 17-25-4w, Reno County, making the second commercial producer in the county. Early in the week fluid was standing within a few feet of the top of the hole. In 12 hours it swabbed 120 bbls. on the gauge of June 13. After being bailed it made a flow of about 45 bbls. and then the hole bridged. The pay was found at 3,606-11 feet. The new well is located about 20 miles southwest of the Voshell Pool, in McPherson County, and is believed to be on the same trend, on the Abilene arch.

W. C. McBride, Inc.'s No. 1 Bacon, in Section 36-23-5w, Reno County, a wildcat, found a showing of oil at 3,418 feet. The casing was landed at 3,385 feet, the show of oil was found on top of the water which was being carried in the hole at the time the oil showing was noticed. The test was shut down the latter part of the week for a swab. It was estimated the hole had 1,400 feet of fluid of which 200 feet was oil.

Wildcatting on East Side

Magnolia Petroleum Co. has announced a new wildcat test for Marion County. The new test is No. 1 Lehrman, SE cor. NW, Section 18-21-2, Marion County. The test is located on a block of about 2,000 acres which was acquired when the Magnolia Petroleum Co. purchased the holdings of the White Eagle Oil & Refining Co. Magnolia Petroleum Co. also has three other operations in different counties in the State. One in Sumner County, in Section 9-33-2, the second southwest of Eldorado, in Section 2-26-5, Butler County. The third is an attempt to extend the Valley Center Pool, in Section 18-26-1, Sedgwick County.

Another wildcat test is expected to be announced by the Arkansas Valley Corp. and the Dixie Oil Co. on a core drilled structure in the northwestern part of the county. The test is expected to be located at No. 1 Hacker, NW cor. NE, Section 6-17-1, Marion County.

On the east side of the Patterson Pool, in Greenwood County, the Empire Oil & Refining Co., Prairie Oil & Gas Co., and Syndicate Oil Corp. were developing the area in a moderate manner. Empire Oil & Refining Co.'s No. 9 C. Patterson was expected to be completed this week. Northeast of Hamilton the same operators were preparing to shoot No. 3 Nesbit, in the Bartlesville sand at 1,730-60 feet. The test was estimated to be showing for 100 bbls. of oil. It is also located on the east side of the pool.

Production was extended in the Wiggins Pool during the week by Ward McGinnis' No. 4 Mock, NW cor. SW NE, Section 26-24-10, Greenwood County. It was estimated a 100-bbl. well. The pay was found at 1,882-1,915 feet. Empire Oil & Refining Co.'s No. 3 Nesbit, NW cor., Section 6-24-12, was also completed. It swabbed 145 bbls. in 19 hours while cleaning out. The oil was found in the Bartlesville sand at 1,730-1,800 feet.

Dry Hole Near Topeka

The wildcat test 12 miles south of Topeka, in Shawnee County, has been abandoned in the Wilcox sand. The test was drilled by Jenkins & Scott in the NE cor. SE, Section 8-12-14, to a total depth of 2,678 feet after drilling into the Wilcox sand horizon about 100 feet.

Operators in Saline County are watching the Dixie Oil Co.'s No. 1 Miller, in Section 9-17-3, in hopes of proving up the pay area in that county. It is being drilled near the same company's No. 1 Olsen, in Section 20-17-3, which is producing about 7 bbls. a day from the Viola lime, after being plugged back from the Wilcox sand. No. 1 Miller had water in chat at 2,845-75 feet and was drilling deeper at 2,890 feet. It is expected to reach the Viola formation in about a week.

The Independent Oil & Gas Co. expects to complete a new 18-car loading rack in about 10 days in Section 28-20-10w, south of the Schurr Pool, in Rice County. The four producing wells in the pool owned by the Independent Oil & Gas Co., Slick, Pryor & Lockhart, Vickers Petroleum Co., and Producers & Refiners Corp., grouped around the center of Section 21-20-10w, will be opened for production when the loading rack is completed. The other well a quarter mile east of the four producers which is owned by Slick, Pryor & Lockhart and Allison & Fitzwilliam Petroleum Corp. will remain shut in until the offsets are completed. These wells have been the forerunner of a drilling campaign in other parts in the county. Three tests are drilling on the townsite of Raymond southeast of the pool in Section 28-20-10w.

Big Campaign Planned

Argus Production Co. is planning to drill 80 test wells in Stevens and Morton Counties, Kansas, and Texas County, Oklahoma, during the year 1930. The company now has one producing gas well in Morton County, and 15 producing gas wells in Stevens County. It is interested in drilling 32 tests in Morton County and 15 tests in Stevens County. With an estimated area of 75 miles of potential gas territory, the Hugoton gas field is the largest gas area in the State. The area, which is far removed from any other production, has completed 16 gas wells without any dry holes. Some express the opinion the gas-producing area may extend to the five other adjoining counties. The gas area has been known as the Hugoton Field due to the fact that the first gas well was found near the town of Hugoton, but it has now spread to other parts of Stevens and Morton Counties, and may spread to Haskell, Grant, Stanton and Gray Counties, in Kansas, and Texas County in Oklahoma. It is located about 100 miles north of Borger, in the Texas Panhandle. The Hydraulic Oil Co.'s No. 1 School Land, NW cor. SE, Section 22-34-43w, Morton County, is the most westerly test in the State and is only about 5 miles east of the Colorado state line. If the test makes a commercial producer it will extend the gas-producing area 25 miles to the west. A showing of gas was found at 1,350 feet which burned for several hours causing considerable excitement.

The only operation in the state line pool, in Sumner County, is the Gypsy Oil Co.'s No. 2 Enderud, in Section 16-35-4w. It was drilling at 4,500 feet, on the last report and was expected to reach the Wilcox sand at about 4,750 feet.

Butler County

Empire Oil & Refining Co. has the rig up for No. 100 Koogler, SW cor. NW SE, Section 20-26-5. P. W. Y. Oil Co.'s No. 2 Rutherford, CEL SE NW, Section 24-27-4, is drilling at 400 feet. Empire Oil & Refining Co.'s No. 96 Koogler, SE cor. SW NE, Section 20-26-5, has been completed for 150 bbls. in sand 2,517-76 feet. No. 8-A Brandenberger, NE cor. SE NE, Section 22-27-5, has been completed for 275 bbls. in sand 2,727-69 feet.

Coffey County

Selby & Nolan's No. 1 Eppinger, NW cor. NE NW, Section 23-22-13, is a rig. Linn Oil & Gas Co.'s No. 1 Levering, NW cor. NE SE, Section 12-23-14, is dry and abandoned at 1,977 feet.

Ellis County

Phillips Petroleum Co.'s No. 1 D. Clinton, SE cor. NW, Section 5-12-17w, has been completed for 195 bbls. in sand

(Continued on Page 139)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

BARBER COUNTY

Company, farm and location—	Remarks:
Barbara Oil Co.'s No. 1 Hamblin, SW NW Sec. 24-33-13w	Drlg. 3,100 ft.
Skelly Oil Co.'s No. 1 Temple Ranch, SW NE Sec. 13-34-15w	Shut down 5,530 ft.
Phillips Pet. Co.'s No. 1 Powell, SE cor. SE Sec. 11-32-10w	Drlg. 4,051 ft.

BARTON COUNTY

Slick and Prairie's No. 1 Rude, SW cor., Sec. 11-16-13w	Rig.

BUTLER COUNTY

E. L. Sturdy's No. 1 Haury, NE NW Sec. 1-23-4w	Rig.
Aladdin Pet. Co.'s No. 1 Metzger, NW SE Sec. 23-28-3	Drlg. 1,050 ft.
Gypsy Oil Co.'s No. 1 Osborne, NW SE Sec. 22-26-3	Rig.
T. C. Johnson's No. 1 Heath, NE SE Sec. 12-27-3	Drlg. 2,907 ft.
Elam et al's No. 1 Hopkins, SE SW SE Sec. 26-23-4	Shut down 2,720 ft.
Joe Liggett's No. 1 Guanther, C SE NE NW Sec. 29-26-7	Shut down 50 ft.

CHASE COUNTY

Chase County Gas Co.'s No. 1 Weirhoff, SW NW Sec. 31-19-6	Abandoned 1,080-88 ft.; water.
Urschell et al's No. 1 Lippa, C SW SW Sec. 27-18-6	Abandoned 2,315 ft.
Steinbuckel et al's No. 1 Stephenson, NE SW Sec. 4-20-6	Drlg. 2,100 ft.

CHAUTAUQUA COUNTY

Valentine Oil Co.'s No. 1 Patterson, NW SE SW Sec. 2-33-9	Shut down 1,690 ft.

CLARK COUNTY

Watchorn's No. 2 Morrison, NW NE Sec. 20-32-21w	Shut down 6,212 ft.

CLAY COUNTY

Crisler et al's No. 1 Tivier, SW cor. Sec. 19-8-3	Shut down 50 ft.

COFFEY COUNTY

Kimsay's No. 1 Baker, SE cor. Sec. 24-22-13	Shut down 350 ft.
Ritchey et al's No. 1 Rossenmacher, C SE Sec. 36-22-13	Drlg. 755 ft.
Roberts et al's No. 1 Hay, SW SE NW Sec. 32-22-15	Rig.

COWLEY COUNTY

Tom Fine's No. 1 Boyd, NW NE Sec. 32-32-4	Drlg. 450 ft.
Roth & Faurot's No. 1 Adams, C SW NE NE Sec. 19-32-8	Show oil 2,120-44 ft.; T. D. 2,147 ft.; fishing.

DICKINSON COUNTY

Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Drlg. 1,300 ft.
Emery-Curtis & Bryan's No. 1 Hevner, NW SE Sec. 31-13-3	Drlg. 2,860 ft.
Cross' No. 1 Sanden, NE cor. Sec. 12-15-2	Rig.
Hiatt & Durham's No. 1 Wendt, NW cor. Sec. 17-16-2	Shut down 50 ft.
Kruger et al's No. 1 Diche, C NW NE NE Sec. 17-13-4	Shut down 2,935-43 ft.; water.
E. N. Morgan's No. 1 Whithair, NW SE Sec. 9-12-1	rig. 1,890 ft.

(Continued on Page 173)

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Three Dry Holes in the Holly District

But Gas Area Probably Extended by Well Three Miles Southwest of Oil Wells. New Locations in Zwolle. Arkansas and Mississippi Quiet

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., June 16.—Two dry holes offsetting production, and a third a mile south of production, added little encouragement to the prospects of the Holly district of DeSoto Parish this week, through the probable gas area was stretched considerably by a wild gas well 3 miles southwest of the three oil wells in the pool. A. C. Glassell's wildcat in Concordia Parish will be a principal attraction next week when plug is drilled after recementing casing to cut off water that appeared in considerable amount when the well blew in early this week. Zwolle was mildly interesting by virtue of new locations in wildcat and semiwildcat territory but Carterville had nothing beyond routine and Sarepta, a few miles east, had only a few new locations. Mississippi activities appear to have quieted down considerably and Arkansas news is of the same character as Carterville.

Completion by Standard Oil Co. of No. 1 C. C. Fuller in the SE NW, Section 5-13-13, discovery section at Holly, as a salt water hole at 2,867 feet and No. 1-A Parker in the SW NW of the same section, abandoned at 2,852 feet for the same reason, further emphasized the spotty and treacherous character of the pool as development thus far has shown it to be. The former is offset on the east and north by producing wells and the latter is only a short distance east of a gas well, all three producers being completed at around 2,848 feet with little variation in their surface elevations. The company's No. 2-A J. Fuller in the center of the NW SE, Section 6-13-13, completed at 2,829 feet with an estimated 15,000,000 feet of gas is a slight extension west and north, and No. 1-B Parker in the SE SE, Section 31-14-13, with 4,000,000 feet of gas from 2,847 feet marks the extreme northwest corner of production as so far defined, wells farther north and to the east having been unsuccessful. No. 1 Brooks in the NE NW, Section 8-13-13, a mile east and south of nearest production, rather puts the brakes on hopes that territory south of the three oil wells in the pool would be productive but, as spotty as Holly has been shown to be so far, it may not mean anything. Arkansas Fuel Oil Co.'s No. 2 Scott in the SE NE, Section 32-14-13, half a mile east of dry No. 1 on the same lease and on the extreme north edge of development, may turn out differently than No. 1. It is waiting orders at 2,790 feet after swabbing 35 bbls. of oil and 20 bbls. of salt water from 2,781 feet. Standard Oil Co. proposes making a deep test of No. 1 Sample, in the NE cor., Section 7-13-13, half a mile south of the gas wells in Section 6 and the same distance west of the Brooks salt water test and is drilling lime and shale at around 3,100 feet.

Three miles southwest of production O'Dell & Lawton's No. 1 Harris, in the SE cor. NW SE, Section 11-13-14, cemented 6⅝-inch casing at 2,743 feet and was reaming down when it blew in from somwhere between casing seat and 3,150 feet with an estimated 15,000,000 to 20,000,000 feet of gas with 1,500 feet of drill stem in the hole. While coming out with this length of pipe gas took it away from the crew, wrecked the derrick and is now blowing wild. This well was drilled eight or ten years ago as Danzizer and others' No. 1 Harris and abandoned at 3,150 feet as a dry hole.

Decline in Production

Decreases of 2,195 bbls. in daily average runs from Zwolle-Blue Lake area in Sabine Parish and 1,350 bbls. in Smackover heavy oil were the chief causes of a net decline of 120 bbls. in shipments from the Shreveport division during the week. Ordinary fluctuations in movement of oil from the other producing areas of the division were, however, sufficient to hold Louisiana runs to a net decline of 520 bbls. and to an increase of 400 bbls. from Arkansas. Caddo light oil runs of 9,350 bbls., an increase of 465 bbls., indicate complete recovery of the pools from the recent flood, but the same cannot be said of Smackover's daily average of 38,650 bbls. which is 1,350 bbls. less than it was last week. A decline of 2,195 bbls. from Zwolle-Blue Lake is not so easily explained either. An increase of 145 bbls. in shipments from Sarepta-Carterville may be due either to new wells in Carterville or to refinery requirements. Champagnolle runs increased 640 bbls. for, probably, the same reason but an increase of 960 bbls. in the movement of heavy crude from Urbana district of Union County, Arkansas, is due probably to removal of accumulated storage oil as well as emergence of the lower part of Union County from Ouachita River flood waters. Daily average runs from the several pools were:

NORTH LOUISIANA	
Caddo, light	9,350
Caddo, heavy	2,315
Homer	3,565
Haynesville	4,640
DeSoto-Red River	3,020
Elm Grove	400
Bellevue	630
Cotton Valley	2,110
Urania	5,125
Pleasant Hill	600
Sarepta-Carterville	3,715
Zwolle	3,240
Holly	1,520
Total	40,230
Last week	40,750
Decrease	520
ARKANSAS	
El Dorado	4,100
Smackover, light	5,165
Smackover, heavy	38,650
Stephens	960
Nevada County	1,010
Lisbon	990
Champagnolle	4,440
Bradley	65
Mount Holly	100
Urbana	1,320
Total	56,800
Last week	56,400
Increase	400
Both states	97,030
Last week	97,150
Decrease	120

Zwolle Townsite

Central Petroleum Co. tested dry in two Zwolle Townsite wells, No. 1 Baptist church at 2,580 feet and No. 1 McCormick at 2,595 feet, both in Section 31-8-12. The former had stood 200 feet in oil from 2,350 feet and a test at the present level also showed oil but bailed dry. No test was made at higher levels on the McCormick. C. E. Simmons' location for No. 1 Anderson in the same section will not be drilled.

Loring Oil Co.'s No. 5 Bowman-Hicks in Section 34-8-12 which was dry in the 2,580-foot horizon and showed a little gas at 3,578 feet is in shale at 3,856 feet; No. 9 in the same section hit a break in the chalk at 2,509 feet and is drilling with cable tools at 2,515 feet with 1,000 feet of oil in the hole. Locations have been made and derricks are up for No. 1 Gardner in the SE NE, Section 27-8-12 and for No. 1 Schull in the NW SW, Section 26-8-12, offsets west and south, respectively, of A. H. Tarver's No. 2 Sabine State Bank, in the SW cor. SW NW, Section 26, completed last week pumping 45 bbls. from 2,327 feet, and for No. 10 Bowman-Hicks in the SW cor. NE SE, Section 33-8-12, two locations east of Olsan Brothers' big producer on the Ferguson lease in the same section, which well is holding up remarkably close to its initial 3,500 bbls. McFann & Pace's No. 1 Reeves, in the SW NW, Section 31-8-12, shared the experience of the two other townsite wells tested this week, bailing dry at 2,626 feet. L. Nagle's No. 1 Corley, in the SW NW, Section 31, was not abandoned as reported last week but is waiting on standard rig and probably will be a small pumper from 2,461 feet at which depth it made a considerable head last week, apparently went dead and was reported abandoned but accumulated sufficient oil to warrant putting it on the beam before definitely giving it up as a hopeless proposition. Stovall and others' No. 1 Lefkovitz, in the SE NW, Section 33-8-12, another test in the "half way" territory between production in the discovery Section 34-8-12 and Zwolle Townsite, is waiting orders at 3,008 feet after testing salt water at 2,858 feet and dry in the 2,600-foot horizon. Among the Zwolle wildcats McDaniels & Lieber's No. 1 Batson, Section 16-8-12, 1½ miles northwest of nearest production, cemented 6-inch at 2,193 feet (could not set 8¼-inch at 2,304 as reported) and bailed dry at 2,304 feet. Loring Oil Co. topped the chalk at 3,090 feet on No. 1 Peavy-Wilson in Section 21-6-13, 12 miles southeast of Blue Lake production, tested dry in the break between the marl and chalk at 3,090 feet and is coring at 3,209 feet. It will be a 6,000-foot test. H. T. Stacey and others have derrick up for No. 1 Polly in the NE cor. NE NE, Section 18-8-12, 3½ miles due north of Zwolle Townsite.

(Continued on Page 135)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

NORTH LOUISIANA

AVOYLLES PARISH

Company, farm and locaton—
R. E. Tippett's No. 1 Chateline, NE NE, Sec. 34-1n-3e...Cored S.W.; sand 3,140-7 ft.; S.D. 3,258 ft.

BIENVILLE PARISH

Ark.-La. P. L. Co.'s No. 2 (was 1) Ashley, 600 ft. N, 660 ft. W, SE cor., Sec. 15-16-10 ..... Drlg. gummy shale, 1,656 ft.
Ark-La. P. L. Co.'s No. 3 Ashley, 700 ft. N, 660 ft. W, SE cor., Sec. 15-16-10 ..... Rig up.
W. A. Nichols et al's No. 1 McDermott, 660 ft. S, 660 ft. W, NE cor. NE NE, Sec. 28-18-6 ..... Tested dry 2,050 ft.; S.D. 2,191 ft.

BOSSIER PARISH

Andrews & Davelin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14 ..... Coring sandy shale 850 ft.
La. G. & F. Co.'s No. 1 Crystal Oil Ref. Co., 66 ft. N, 1,320 ft. W, SE cor. SW SE, Sec. 7-21-11 ..... D.S. test 3,561 ft. W.O.
H. I. Morgan's No. 1 Kendricks, 1,120 ft. N, 200 ft. E, SW cor., Sec. 22-19-11 ..... Rig up.

CADDO PARISH

L. B. Mawk's No. 1 Swann, 440 ft. N, 200 ft. E, SW cor., Sec. 23-21-14 ..... S.D. for fuel; T.D. 700 ft.
R. W. Norton's No. 1 Hill, 630 ft. N, 1,260 ft. W, SE cor. NE, Sec. 33-23-16 ..... Drlg anhydrite 5,100 ft.

CALDWELL PARISH

Hudson et al's No. 1 Gandy, SE NW, Sec. 4-11-3e ..... Cmtd. 10-in. 100 ft.

CATAHOULA PARISH

Nick Barbare et al's No. 1 L. McGraw, 150 ft. N, 150 ft. W, SE cor. SW NW, Sec. 30-10-9 ..... Derrick.
National O. & G. Co.'s No. 1 Kirkland, 585 ft. E, 495 ft. N, SW cor., Sec. 35-9-1n ..... S.D. 1,300 ft.

CLAIBORNE PARISH

El Dorado Chief Oil Co.'s No. 1 Dance, C SW NE, Sec. 27-20-7 ..... S.D. 2,240 ft.
Leue Oil Co.'s No. 1 Taylor, 1,153 ft. S, 360 ft. W, C, Sec. 16-22-6 ..... S.D. 2,864 ft.
Triangle Drlg. Co.'s No. 2 Caskey, 660 ft. N, 660 ft. W, SE cor., Sec. 6-19-5 ..... Drlg. anhydrite 4,099 ft.

(Continued on Page 123)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

BOSSIER PARISH—CARTERVILLE

Company, farm and location—	Remarks—
Ark. Fuel Oil Co.'s No. 1 Bain, 330 ft. N, 330 ft. E, SW cor. NW SW, Sec. 31-23-11	Began drlg. June 9; cmtd. 10-in. 253 ft.
Ark. Fuel Oil Co.'s No. 3-B Barnett, 330 ft. N, 330 ft. E, SW cor. NW NE, Sec. 36-23-12	Cmtd. 6⅝-in. 3,131 ft.; T. D. 3,162 ft.
Ark. Fuel Oil Co.'s (formerly Muslow Oil Co.'s) No. 1 Floyd, 990 ft. S, 330 ft. W, C, Sec. 25-23-12	W.O.S.R. 3,176 ft.
Ark. Fuel Oil Co.'s No. 4-A Kilgore, 100 ft. N, 1,330 ft. E, SW cor. SE SW, Sec. 30-23-11	190 ft. oil; W.O.S.R; T.D. 3,133 ft.
Ark. Fuel Oil Co.'s No. 7-B Kilgore, 330 ft. S, 990 ft. E, NW cor. NE NW, Sec. 31-23-11	W.O.S.R. 3,164 ft.
Ark. Fuel Oil Co.'s No. 2 Mark Meyer, 330 ft. W, 250 ft. S, NE cor. SE, Sec. 36-23-12	Began drlg. June 7; cmtd. 10-in. 182 ft.; drlg. 1,358 ft.
Ark. Fuel Oil Co.'s No. 1 Ramsey, 557 ft. S, 330 ft. E, C, Sec. 31-23-11	W.O.S.R. 3,171 ft.
Askew & Goodman's No. 1 Roberson, 330 ft. S, 282 ft. W, NE cor. SW SW, Sec. 25-23-11	Show oil, gas and S.W; T.D. 3,167 ft; T.A. 3,280 ft.
Del.-La. Dev. Co.'s No. 6 Bollinger, 330 ft. S, 220 ft. W, NW cor. Lot 17, in Lot 16, Sec. 31-23-11	Full oil; W.O.S.R; 15 ft. broken sand; T.D. 3,217 ft.
Eylers O. & G. Co.'s No. 1 Wise, 330 ft. S, 330 ft. W, NE cor., Sec. 35-23-11	350 ft. oil; W.O.S.R; T.D. 3,203 ft.
Greenwood Prod. Co.'s No. 1 Bollinger, 1,980 ft. N, 150 ft. E, SW cor. SE, Sec. 36-23-12	W.O.S.R; 2,500 ft. oil; T.D. 3,200 ft.
Greenwood Prod. Co.'s No. 2 Bollinger, 990 ft. W, 330 ft. S, NE cor. NE SE, Sec. 36-23-12	Began drlg. June 9; cmtd. 10-in. 380 ft.
Gulf Ref. Co.'s No. 1 Allums, 990 ft. N, 330 ft. W, SE cor., Sec. 36-23-12	Location.
H. L. Hunt's (was Love et al's) No. 1 Allen, SE cor. NE NE, Sec. 30-23-11	W.O. 3,482 ft.

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Deepening Is Encouraged at Refugio

First Successful Oil Producer in 6,400-6,500-Foot Sand Flowing 500 Bbls. Daily. Another Extension Well In

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., June 16. — Giving promise of making the first successful oil producer in the 6,400-6,500-foot sand at Refugio, Mission Drilling Co.'s No. 1 Moss, Block 110, of the town lots, late in the week was flowing 500 bbls. daily of high gravity pipe line oil. One other producer has been completed in this sand, this being Union Producing Co.'s No. 1-A Rose Lambert, approximately a mile northeast, which flowed as high as 200 bbls. daily for a short time but which soon went to water and then quit entirely.

The Moss well, in contrast to the Lambert, was completed as a high pressure gas well, and since its completion the latter part of May, it has started making oil, the flow of which has been increasing steadily. It is in sand at 6,454-70 feet and it originally had a pressure of 2,500 pounds.

This well lies between the 3,700-foot field and the string of 5,400-5,500-foot producers being developed to the east and causes greater interest in the possibilities of deepening both the 3,700-foot wells to the west and the 5,400-foot wells to the east, as well as developing the intervening territory. Development of the 6,400-foot sand out from the present Refugio producing area seems fairly well condemned with the finding of dry holes or salt water in the several deep tests drilled at scattered points around the field.

Extension Well

Another interesting extension of the 5,400-5,500-foot sand production was made during the week with the completion of Houston Oil Co.'s No. 1 Kay, which is making 500 bbls. daily on a quarter-inch choke from sand at 5,475-78 feet, and with a pressure of 1,050 pounds. This well is approximately 1,500 feet to the northwest of Union Producing Co.'s No. 1 O'Brien, the 5,400-foot sand discovery well, although separated from it by several salt water completions.

The Kay well further reveals the uncertain production trends and the spotted conditions at Refugio. The O'Brien discovery well, the nearest 5,400-foot sand producer, proved to be a local proposition as it is isolated by salt water tests in a spot approximately 2,000 feet to the northwest of the strip of 5,400-foot production which is being developed in a northeasterly-southwesterly trend along the east side of the original 3,700-foot field.

Independent Oil & Gas Co.'s wildcat deep well, No. 1 Helen Riley, in the heart of the original gas-producing area in the high part of the Refugio district, continues to produce but is making a considerable amount of water. It came in two weeks ago flowing around 270 bbls. of fluid, 25 per cent water, in sand at 5,656-65 feet. As this sand is at an irregular depth, it first was thought that a new deep sand had been found. Geologists now are of the opinion that a fault separates this wildcat from the other deep production which until now has been confined to the east and outside of the shallower producing field. A fault was not indicated in the development of the shallower sands but probably is a structural condition in the deeper horizon only.

With these exceptions very little of new interest was developed at Refugio. Independent Oil & Gas Co.'s No. 1 Mercy Academy on the south edge of the 5,400-foot production made a 75-bbl. well in sand at a total depth of 5,384 feet, flowing with a pressure of 1,050 pounds. In the townlot area, Rutherford-Traylor Oil Co.'s No. 2 Cable came in flowing 550 bbls. daily on a 2-inch line. The latter is in the 3,700-foot horizon with sand at 3,682-3,700 feet.

Barbers Hill Development

In the deep sand development at Barbers Hill, interest at the close of the week was centered on Humphreys Corp.'s No. 1-F Barber, northwest flank, and an offset to the same company's No. 8-A Kirby, deep discovery well of that flank, which has been Barbers Hill's most prolific and consistent producer. The Barber well was brought in the middle of May from a total depth of 6,487 feet, flowing at the rate of 1,000 bbls. daily for a short time. It was deepened to 6,492 feet where screen was reset and the well again brought in estimated good for 900 bbls. daily. This production again failed to hold up and the hole has been deepened to 6,521 feet. Saturday screen was started in the hole but the well started to blow in and had to be killed. Efforts over the week-end were centered in getting screen down.

Humphreys Corp.'s No. 1 Scott, on the north flank and an offset to the same company's No. 1 Morgan, the discovery well of that flank, has picked up a deep showing in sand and shale at a total depth of 7,216 feet. The Morgan well, which flowed only a short time before sanding up and which now is fishing wash pipe, is in sand at a total depth of only 6,404 feet. These are the only two tests which have been drilled in this immediate sector of Barbers Hill Dome.

Shell Petroleum Corp. has what looks like a small well on its Danbury Dome, Brazoria County. This well, No. 1 Blakely-Winston, H.T.&B. Survey No. 14, the first test drilled on the Danbury Dome, late in the week was swabbing around 124 bbls. of fluid, 50 per cent oil, daily, from a sand at a total depth of 1,579 feet with 20 feet of 9⅝-inch screen set. The well probably will make a pumper, and the discovery well.

This sand originally was tested last November and some oil was swabbed but as the test was rigged up for a deep hole, the operators decided to pass up the shallow sand temporarily. The hole was drilled to 5,255 feet going into salt topped at 5,228 feet. The hole then was plugged back to a sand at 1,667 feet, which tested salt water and again plugged to its present depth. A number of other sands also were encountered in the drilling of the test.

Shell's second test at Danbury is under way and late in the week was drilling in sticky shale at 2,002 feet. Several miles to the south of Danbury, Rycade Oil Corp.'s No. 1 Rapid City, Henry Austin Survey, is drilling in sand at 5,203 feet without having shown anything.

Bryan Heights Wildcat

One of the most interesting wildcats started on the Gulf Coast in many months is getting under way at Bryan Heights (Freeport Dome) in the extreme southern part of the county on the Gulf Coast. This test, Freeport Sulphur Co.'s No. 2,001 fee, C. Areola 1,092-acre survey, has been set up with the largest rig and derrick ever used on the Gulf Coast and will make a deep test on the south flank of the dome.

Bryan Heights is one of the oldest known domes on the Gulf Coast and has been extensively developed in the cap rock for sulphur but so far it has been unproductive of oil. Except for the myriad of shallow cap rock sulphur tests drilled on top the dome there has been comparatively little wildcatting. Humphreys Corp. a year ago drilled a wildcat on the west side of the dome and abandoned it in salt at 3,685-3,710 feet. That test, No. 1 Bryan, and the test just starting, comprise the only deep drilling. As early as 1901, the J. M. Guffey Petroleum Co. drilled on the dome getting a hydrogen sulphide gas well at 900 feet which was abandoned. As the early development revealed rich deposits of sulphur in the cap rock the dome has been virtually abandoned except for that wealth.

Completions throughout the Gulf Coast during the week were of little interest or importance. Gulf Refining Co. got a 50-bbl. well at Port Barre, St. Landry Parish, Louisiana, and Gulf Production Co. added a 120-bbl. producer in its Hankamer Field in southern Chambers County. At Spindletop, Yount Lee Oil Co. completed its No. 134 McFaddin for 1,600 bbls. at 4,711 feet, and at Raccoon Bend and DeWalt, Humble Oil & Refining Co. completed a small well each.

Daily Average Production

Daily average production of Gulf Coast fields for the week ended June 14 was:

SOUTHEAST TEXAS

Allen	45
Barbers Hill	20,497
Batson	1,229
Big Creek	4,242
Blue Ridge	2,026
Brenham	165
Boling	1,102
Clay Creek	1,617
Damon Mound	640
DeWalt	11,923
Fannett	1,013
Goose Creek	4,667
Hankamer	2,452
High Island	1,342
Hull	9,780
Humble	13,549
Jasper County	20
Lost Lake	657
Markham	315
Nash	356
North Dayton	2,890
Orange	2,137
Orchard	2,991
Pierce Junction	9,571
Port Neches	1,532
Raccoon Bend	11,852
Refugio	34,446
Esperson (Sheeks)	2,088
Saratoga	1,044
Sour Lake	2,297
South Liberty	4,212
Spindletop	17,999
West Columbia	5,733
Total Southeast Texas	176,429
Week ending June 7	179,599
Decrease	3,170

SOUTH LOUISIANA

Anse La Butte	32
Bayou Blue	78
Bayou Bouillon	78
Black Bayou	725
Edgerly	633
Jennings	765
Hackberry	2,914
Lake Barre	722
Lake Pelto	196
Lockport	2,753
Port Barre	3,681
Sorrento	103
Starks	488
Sulphur	3,700
Sweet Lake	105
Vinton	5,203
Welsh	146
White Castle	1,109
Total South Louisiana	23,431
Total week ending June 7	21,122
Increase	2,309
Total Gulf Coast	199,860
Total week ending June 7	200,721
Decrease	861

GULF COAST FIELDS AND WILDCATS

Week Ended June 14

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Production Co.'s No. 4 Wilburn, southeast.. Comp. pumping 50 bbls. daily 5,268 ft.
Mills Bennett Production Co.'s No. 10 Barrow, southwest.. Drlg. sandy shale and lime 3,418 ft.
Mills Bennett Production Co.'s No. 3 E. W. Barber, north ..... Drlg. rock 1,321 ft.
Mills Bennett Production Co.'s No. 3 Gulf-Higgins, southeast ..... Drlg. sand 4,405 ft.
Mills Bennett Production Co.'s No. 2 Fisher, southeast ... Drlg. sand 1,280 ft.
Mills Bennett Production Co.'s No. 2 Wilburn (workover) ..... Total depth 5,159 ft.; milling out 5,084 ft.
Gulf Production Co.'s No. 4 Wilburn, southeast ..... Rigging up to pump 5,135 ft.
Humble Oil & Ref. Co.'s No. 6 fee, west ..... Rig.
Humble Oil & Ref. Co.'s No. 7 Meyers fee, west ..... Derrick.
Humphreys Corp.'s No. 1-B Barber, north ..... Derrick.
Humphreys Corp.'s No. 1-F Barber, northwest ..... Setting screen 6,521 ft.
Humphreys Corp.'s No. 9-A Kirby, northwest ..... Drlg. sand and boulders 1,935 ft.
Humphreys Corp.'s No. 6-A Barber, northwest ..... Derrick.
Humphreys Corp.'s No. 2-C Kirby (workover) ..... Set screen 5,224 ft.
Humphreys Corp.'s No. 7-B Kirby, northeast ..... Location.
Humphreys Corp.'s No. 1 Morgan ..... Fishing wash pipe 6,404 ft.
Humphreys Corp.'s No. 2 Scott ..... Total depth 7,216 ft.; cem. casing 7,023 ft.
Humphreys Corp.'s No. 3-H Kirby (workover) ..... Coring sand 6,111 ft.
McAlbert Oil Co.'s No. 1 Woodward (workover) ..... Oil sand 5,212-41 ft.
McAlbert Oil Co.'s No. 6 Woodward, east ..... Set 38 ft. screen 3,655 ft.; comp. flowing 500 bbls.
Rio Brano Oil Co.'s No. 1 Fee, southwest ..... Rig.
Sinclair Oil & Gas Co.'s No. 3 McKinney fee ..... Drlg. shale 5,953 ft.
Sinclair Oil & Gas Co.'s No. 7 Wilburn, southeast ..... Drlg. lime 2,870 ft.
Sun Oil Co.'s No. 5 Wilburn fee, southeast ..... No report.
Sun Oil Co.'s No. 5 J. Wilburn, southeast ..... Swabbing 5,318 ft.
Sun Oil Co.'s No. 7 J. Wilburn ..... Drlg. shale 3,463 ft.
Sun Oil Co.'s No. 5 Chambers, south ..... Drlg. hard sand 3,110 ft.
Sun Oil Co.'s No. 1 O. K. Winfree, west ..... Gumbo 1,190 ft.; cem. 10-in. casing.
The Texas Company's No. 4 Wilburn, southeast ..... Drlg. shale boulders and lime 2,126 ft.
The Texas Company's No. 1 Williams, southwest ..... Derrick.
Yount Lee Oil Co.'s No. 14 Chambers, south ..... Total depth 5,561 ft.; set screen 4,680 ft.; sanded.
Yount Lee Oil Co.'s No. 4 Phillips, southeast ..... Drlg. shale and lime 3,545 ft.
Yount Lee Oil Co.'s No. 7 Woodward, southeast ..... Drlg. sandy shale 5,165 ft.
Yount Lee Oil Co.'s No. 2 Zadie Fisher, southwest ..... Drlg. sandy shale 3,051 ft.
Yount Lee Oil Co.'s No. 5 Richardson, southwest ..... Drlg. shale and lime 3,187 ft.

RACCOON BEND—AUSTIN COUNTY

Humble & Valley's No. 5 Bellville ..... Rig.
Humble & Valley's No. 1 Brown ..... Drlg. sand and sandy shale 2,765 ft.
Humble & Valley's No. 3 Buchanan ..... Derrick.
Humble & Valley's No. 1-B Hardy (Waller County) ..... Standing 3,751 ft.
Humble & Valley's No. 2-B Hardy ..... Location.
Humble & Valley's No. 1-C Mitchell ..... Swabbing 3,403 ft.
Humble & Valley's No. 7 Payne ..... Derrick.
Humble & Valley's No. 8 Payne ..... Derrick.
Humble & Valley's No. 9 Payne ..... Drlg. hard sandy shale 3,092 ft.
Humble & Valley's No. 2 Sherrod ..... Derrick.
Humble & Valley's No. 7 Thompson ..... Swabbing 3,467 ft.

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Bruner Field Gets 20,000 Barrel Well

One of Biggest Producers Ever Completed in Southwest Texas Company by Humble Company. Tidal Well Abandoned

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., June 16.—Humble Oil & Refining Co.'s 20,000-bbl. well in the northeast end of the Bruner Field in Caldwell County served to stimulate interest in that territory and the Tidal company, bailing dry its No. 1 Seligman southwest of the Darst Creek Field, has not dampened the ardor of those who believe there is another oil pool in that direction. There is a gap of about 4 miles between the most southwesterly production of the Bruner Field and the most northeasterly production of the Darst Creek Field, but with no efforts being made at this time to close up that gap. The efforts are to extend Bruner northeast and Darst Creek southwest. No. 1 Seligman is about 13 miles southwest of Darst Creek production and T. C. Hadley's No. 1 Hartwig is about midway between them.

The Humble Oil & Refining Co.'s No. 4 New, at the northeast end of the Joe Bruner Field, is a south offset to the Gulf Production Co.'s No. 2 Briscoe and it came in Tuesday of last week, first estimated at around 10,000 bbls. daily, but by Wednesday it was flowing 20,000 bbls. daily. It is 150 feet from the north line of the James Hinds Survey and the Gulf Production Co.'s No. 2 Briscoe is in the southeast corner of the P. P. McCarley Survey, 150 feet from each line. Most maps are not quite accurate in that territory and taking the foot measurements from lease lines and applying them to the ordinary available map will not bring the two wells in quite the right relationship.

No. 4 New is one of the biggest producers ever completed in Southwest Texas and is exceeded only by the Magnolia Petroleum Co.'s No. 1 Roamel in the Darst Creek Field, which came in flowing at the rate of 42,000 bbls. daily. It has been common to call these big wells "crevice" wells as the easiest way to explain why they are so much bigger than others. In some instances at least they probably are crevice wells. Humble's No. 4 New was completed at 2,320 feet, which is a little high.

Seligman Well Abandoned

Tidal Oil Co.'s No. 1 Seligman, 13 miles southwest of the Darst Creek Field in Guadalupe County and about 1,200 feet from the northwest line and about 1,800 feet from the southwest line of the J. H. Williamson Survey, topped the Edwards lime at 2,796 feet, cored 6 feet into the formation and got sulphur water. It has been abandoned. It will be remembered that on a drill stem test in the Austin chalk this well filled up considerably with oil and for a time created considerable excitement. However, it doesn't settle the question whether there are more pools of oil southwest of the Darst Creek Field.

T. C. Hadley's No. 1 Hartwig, 930 feet from the west line and 2,000 feet from the north line of the Richard Nixon Survey, at about the middle of last week was down 2,660 feet and in marl, which is about the depth at which the Edwards is found in Darst Creek, so unless it should drill through a fault plane and go directly into the Edwards it looks doubtful.

Penn Oil Co. has started a test in the bed of the Guadalupe River a little over a mile southwest of nearest production in the Darst Creek Field and 1,300 feet west of the west line of the J. C. Darst Survey. It has been drilling only a few days.

In the Darst Creek Field, W. H. Gee's No. 1 Denman, at a point where geophysics seemed to indicate a "high," the Edwards was not encountered till 2,995 feet and cored to 3,005 feet and was dry. It was off about half a mile northwest of nearest production but in line with the big 42,000-bbl. well of the Magnolia, which is also off to the west, making a bulge in the line of production. The Penn-Tex' No. 1 Roamel, 1,500 feet west of the Magnolia's big 42,000-bbl. well, at 2,442 feet was shut down on account of boiler trouble and in the Taylor marl. Magnolia Petroleum Co.'s No. 1 Roamel was completed for 42,000 bbls. at 2,321 feet.

Pettus Area

The Pettus area is marked by the number of new locations made and new deals closed and a watchful waiting for the Grayburg Oil Co.'s No. 1 Kimball, 7 miles southwest of the producing center of the field. It was reported last week with a fishing job after it had tested 600 feet of oil on a drill stem test in sand at 3,553-63 feet. The fishing job was completed and casing was set Wednesday of last week. Morgan-Tidal's No. 1 Perrira, 7 miles east of the field, was shut down at 4,314 feet to make some repairs.

Three tests in the townsite of Pettus, between the group of wells around the discovery well on the east and Cosden Oil Co.'s No. 1 McKinney on the west, have rigged up and spudded in. These small tracts in the townsite, if they prove productive, will start some rapid development in that territory, and, being located between production, it looks very much as though they would be productive. Glasscock Brothers are drilling one of the tests, Edwin M. Jones another and Houston Oil Co. another.

Humble Oil & Refining Co. has abandoned at 4,421 feet its No. 1 Lackey & Weldon, about 3½ miles northeast of the field, but north by a mile from the line from the producing oil wells to the Zoch gasser in Goliad County. It is about the same distance north of that line that the discovery 2,900-foot gas well of the field is located.

SOUTHWEST TEXAS

Branyon	23
Bruner	19,856
Buchanan	282
Dale	316
Darst Creek	23,993
Kingsville	108
Larremore	30
Luling	9,621
Lytton Springs	842
Manford	440
McMullen	35
Medina County	22
Mirando	10,587
Pettus	4,731
Somerset	1,598
Yoast	481
Total Southwest Texas	72,965
Total week ending June 7	73,315
Decrease	350

Laredo District

The Escobas Pool between the Jennings gas pool in Zapata County on the west and the Randado oil pool in Jim Hogg County on the east, where a number of good oil producers have lately been completed is rapidly assuming the position of major importance in the Laredo district. Out of a total of 53 tests listed in the district, 22 are in the Escobas and Killam-Cuellar Pools, the latter being just a few miles north of the Escobas Pool. This increase in drilling in that territory has all been developed within the past three weeks.

There were no completions anywhere in the Laredo territory last week but there were 7 new locations announced and of these 3 were in this new area. Of the 22 tests in the two pools in the district, 7 belong to O. W. Killam and are located in the Killam-Cuellar Pool. His No. 23 Cuellar is in a sand at 2,250-51 feet and making a drill stem test. This is about 700 feet deeper than the pay sand of that territory and is evidently an effort to see if there are any more producing sands. The Killam-Cuellar Pool lies about 5 miles north of the Escobas Pool.

Outside of the Escobas and Killam-Cuellar Pools points of interest in the Laredo district include Putman & Walsh's No. 1 Hagist in northwestern Duval County, now rigging up in Survey 269, Block 5. It is in a territory where some wildcatting done in years past has seemed to invite further testing.

In Starr County, The Texas Company's No. 1-B Guerra, is down 3,787 feet and drilling. It is a half mile northeast of the company's No. 4-A Guerra which came in some months ago, an oil well opening a new pool. The Texas Company owns so much acreage that rapid development has not been threatened.

O. W. Willam is starting his No. 19 Bruni in Block 1, Survey 8, Adams Subdivision of the Arispe grant. It is a northeast offset to his No. 18 which was recently brought in as a big gas well from sand at 2,400 to 2,438 feet.

Bexar County Pool

Development of a shallow Pool in Bexar County is calling attention to structural conditions and Echert & Son last week paid $1,500 for a 300-acre lease due to the belief there is deeper production. There are 17 wells in the pool which is located about 4 miles southeast of the southeast corner of the city of San Antonio. The 17 wells are producing a total of about 100 bbls. a day for the entire field and it is waiting pipe line connections. All of the wells excepting one are in the M. Manchaca Survey which is a little less than a mile square. E. H. Echert has seven oil wells and one gasser 150 feet north of the south line of the north half of the survey at an average of 702 feet, and Echert & Son have six wells 150 feet north of the south line of the south half of the survey, the farthest east of the wells being at 615 feet. The dip of formations is to the south and hence production should be a little deeper. No. 5 well on the west with an elevation 20 feet higher is in the pay at 610 feet, and Halbadier has a well in the west point of Jose M. F. Peres Survey a half mile farther south at 705 feet.

This little producing spot is on a line with the Darst Creek and Somerset Fields and operators are watching every little indication of high formations throughout the entire territory. The territory is in approximately the center of the big block leased some years ago by the Humble Oil & Refining Co. and on which it drilled two or three tests. One made 2,000,000 feet of gas.

Maverick County

Rycade Oil Co. is shut down on one well and drilling on two others in the

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WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Frontier Oil Co.'s No. 1 Boynton, 1,000 ft. from S line, 3,700 ft. from E line of N. Flores Sur., 3 miles SW from Somerset Field	T. D. 1,515 ft.; drlg. in sandy shale; light oil show.

BASTROP COUNTY

Judge Batts and others' No. 1 Alexander, 1,670 ft. N of S line, 528 ft. E of W line, Blk. 3 in the W. M. Eastland Sur., 3½ miles NE from Red Rock	T. D. 2,220 ft.; drlg. in shale.
Pacific Oil & Gas Co.'s No. 1 J. Spooner, 300 ft. from N line, 400 ft. from W line in the L. Lavenuz Sur., 4½ miles E from Cedar Creek	T. D. 2,050 ft.; drlg. in shale.
Pacific Oil & Gas Co.'s No. 2 Spooner, 240 ft. from W line, 4,950 ft. from S line 450-ac. tract in the L. Levering Sur., 5 miles E from Cedar Creek	T. D. 625 ft.; drlg. sandy shale.
Majestic Pet. Co.'s No. 1 J. M. Breeding, 160 ft. from N line, 1,020 ft. from W line of 200-ac. tract, 940 varas from W line, 1,225 varas from S line of M. Andrews Sur., 13 miles W from Smithville	Spudded in.

BEE COUNTY

Rio Bravo Oil Co.'s No. 3 S.A.&A.P.R.R., 395 ft. S of Pettus Townsite in Kerr Sur.	Location.
Edwin M. Jones' No. 1 Rapp, 990 ft. SE of NW cor. of Sec. 11 of Razley Subd. in Jose Maria Urangua Sur.	T. D. 350 ft.; set. surface csg.
Barnsdall Oil Co.'s No. 1 Roberts, 300 ft. each way out of NW cor. of 225-ac. lease in the George A. Kerr Sur.	Rigging up.
Houston Oil Co.'s No. 1 Newman, 300 ft. from S line, 300 ft. from W line of 197-ac. tract offset to Cosden's well in J. A. Kerr Sur.	Moving in rig.
Rio Bravo Oil Co.'s No. 1 S.A.&A.P.R.R., A. Smalley Sur.	Location.
Rio Bravo Oil Co.'s No. 2 S.A.&A.P.R.R., A. Kerr Sur.	Location.
Baxter Oil Co.'s No. 1 Mrs. H. J. Burns, 360 ft. from N line, 300 ft. from E line of N 100 ac. of 300-ac. farm in John Pace Sur., 2 miles W from Pettus	Derrick.
Ed Price's No. 1 Mrs. Laura E. Weiss, 200 ft. out of NW cor. of B.&B. 640-ac. Sur., E of Normanna, 6 miles W of Blanco Creek, in the B.&B. Sur.	T. D. 3,004 ft.; shut down for fuel oil.
Fisher & Wiggins' No. 1 A. J. Kimbell, C 189 acres in the Stephen Winship Sur.	T. D. 3,563 ft.; set csg. at 3,553 ft.; now Grayburg Oil Co.'s.

BROOKS COUNTY

Houston Oil Co. of Texas' No. 1 Wormser-Holbien, 1,550 ft. S. 2,650 ft. E of intersection of Lisandro Saenz & Manuel Saenz tracts, El Palo & Blanco de Maguellas grant, SW of Lasater discovery gas	Derrick.
Humble Oil & Ref. Co.-Shell Pet. Corp.'s No. 2 Wm. Singels, 1,320 ft. W of E line, 1,800 ft. S of N line of Sec. 312, Alta Verde area, 7 miles SE from Lasater gas field	T. D. 2,385 ft.; drlg. in sandy shale.

BEXAR COUNTY

Moore-Jauer's No. 1 Holly R. Ellison	T. D. 2,110 ft.; drlg. in broken lime.
J. M. Russell's No. 1 A. O. Miles, 1,600 ft. N line, 600 ft. W line 450-ac. tract, Angel Navarro Sur., 10 miles S from San Antonio	T. D. 220 ft.; shut down.
Henry Yelvington et al's No. 1 Beck, 365 ft. from W line, 310 ft. from S line 100-ac. tract, SW cor. of P. W. Hays Sur., 7 miles E from San Antonio	T. D. 1,470 ft.; shut down for casing.

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Completely Electrified Swamp Field

Bayou Bouillon One of the Most Modern on the Gulf Coast. Eliminates Difficult Handling of Boilers and Lines Through Water

By Neil Williams

BATON ROUGE, La., June 14.—One of the modernly electrified fields on the Gulf Coast and one of the few, if not the only, swamp field of southern Louisiana to be completely electrified, is at Bayou Bouillon, St. Martin Parish. The field is equipped for electric power not only for pumping, treating and other ordinary uses but also for actual drilling.

Electrification was accomplished early this year following the stringing of a "high" line to the field by the Gulf States Utilities Co. This line, which is about 12 miles long, makes connection with the company's main power line from Baton Rouge to Lafayette at what is known as Atchafalaya Station where the Southern Pacific Railroad crosses the Atchafalaya River.

Atchafalaya Station is one of the places where Rycade Oil Corp. and Humble Oil & Refining Co., joint operators of the Bayou Bouillon Field, have established facilities for handling equipment and supplies for the field. There shipments are loaded from trains onto boats, which furnish the only means of access to the field 12 miles down the river.

The Gulf States Utilities Co. has strung the 33,000-volt line along the west bank of the river. Although nearly all that territory is swamp land and generally under water, the 100-foot right of way is a strip of solid land which enables the company to set its poles in the ground without the use of piling. Thirty-five-foot creosoted poles were used.

The terminus of the line and also the Gulf States Utilities Co.'s service is a large substation centrally located in the field and through which the 33,000 volts are stepped down to 2,200 volts for transmission through the Rycade Oil Corp.'s private lines. From this substation the operators take the power to various parts of the field where needed.

Following completion of the "high" line, Rycade first set up electrical pumping units on the three wells, Nos. 1 and 2 State and No. 4 Bouillon fee. The machine shop, the treating plant and the camp lighting system then were hooked up and the latest electrical accomplishment was the drilling of No. 5 Atchafalaya fee, whose drilling was completely electrified. A small generating plant at the field which supplied lights for the camp has been discontinued except for emergencies.

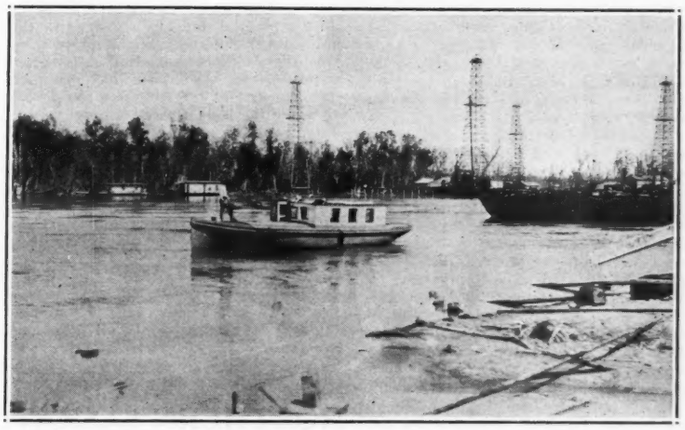
In operating the drilling motors on No. 5 Atchafalaya fee, a portable Maloney transformer bank was used. This consisted of three 100 KVA transformers, capable of stepping down the 2,200 volts in the line of the 440-volt rating of the drilling motors. The transformer is on skids and can be moved readily from one location to another. From No. 5 Atchafalaya fee it will be skidded to No. 1 Woodyard Lake, a new location 235 feet south and 55 degrees west of the former well.

The drilling rig unit includes a Hild differential drive and is equipped with two 165-horsepower, 600-1,200 r.p.m. Westinghouse motors. The drawworks and rotary are operated from the same motors and automatically controlled from the Hild unit. The use of the differential gear permits the automatic control of the feeding of drill pipe in proper relationship to the power, tending not only to keep the load on the drill pipe constant for any given setting but also to hold the pipe on bottom at all times at a constant pressure.

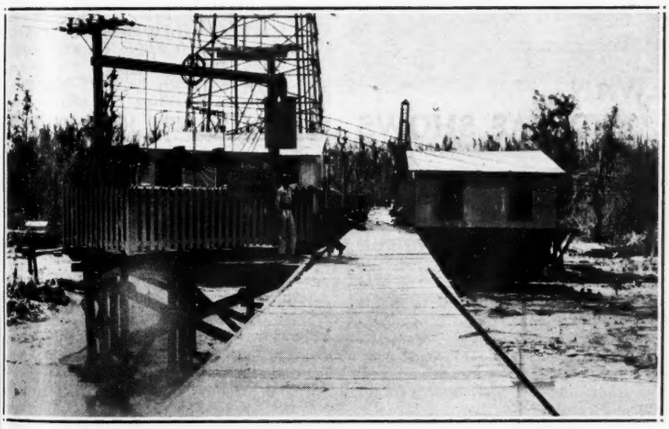
The set-up also includes two Ideal pumps, each run by a 200-horsepower 900 r.p.m. Westinghouse motor with a 50 per cent 10 point speed reduction on controls. The pumps are belt driven which gives first speed reduction from motor to pump of three to one ratio. The pumps are constructed with a positive gear reduction of 5 to 1, which allows them a maximum speed of 50 strokes per minute. The customary operating speed is from 32 to 38 strokes per minute.

Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 5 Atchafalaya Fee, which recently was completed flowing 1,700 bbls. of pipe line oil daily from a depth of 4,341 feet, was the first well, and so far the only one, drilled with electricity. Although the crew had never had any experience with electric rigs and a total of 71 cores were taken, the well was drilled in comparatively short time, a period of only 63 days from the time the hole was spudded on January 10. E. E. Ellender was driller on the well. George Minor is field electrician.

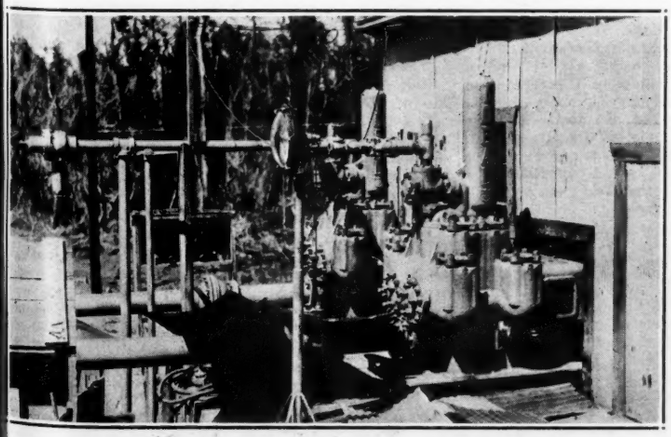
Being a typical swamp field, Bayou Bouillon is particularly adapted for the use of electricity, which has eliminated in this case the difficult task of moving and setting up boilers in the water and laying of long fuel lines through the swamps.



General view of Bayou Bouillon Field.



Electrical set-up of Rycade Oil Corp.'s No. 5 Atchafalaya fee at Bayou Bouillon.



Electrically driven pumps at Bayou Bouillon.

SEEK PREVENTION OF GAS WASTE AND DRILLING INSIDE OKLA. CITY

OKLAHOMA CITY, June 14.—Following a meeting of Oklahoma City operators in Tulsa on June 12, Wirt Franklin, head of the operators' committee of the Oklahoma City Field, filed a petition with the State Corporation Commission for a hearing to open the way for a citation of those charged with wasting gas. Franklin alleged unlawful and improper waste of gas and gas pressure in the Oklahoma City Field. The petition was filed on Friday.

Franklin sought a hearing to set a distinction between oil and gas wells, a question heretofore undetermined.

Meanwhile, the city continued its desperate fight to prevent unregulated oil drilling within the municipal limits by obtaining three temporary injunctions in district court.

Temporary restraining orders were set for hearing June 18 by Tom G. Chambers, district judge.

Two of the new suits were against Hall & Briscoe Oil Co. One charged the company was operating without a permit in Block 22, Walnut Grove Addition, and the other named the company's location in Block 6, Central Addition. Head Petroleum Co. operation in Block 2, Weesner's Addition, was the target of the third suit.

A fourth action, against operators starting a well outside the U-7 zone, was delayed for revision by M. W. McKenzie, municipal counselor.

In Franklin's application for the corporation commission hearing, C. C. Childers commission chairman, said the petition was referred to W. J. Armstrong, chief observation officer, to determine whether some of the operators complained of in the Oklahoma City Field should be cited to appear before the commission to show cause why gas was being wasted.

Armstrong explained that it probably would be necessary to rule on the distinguishing features between oil and gas wells before any operators are cited.

Franklin's petition said that there was a difference of opinion as to the classification of certain wells, and requested the commission to take jurisdiction and proceed to establish rules on oil or gas wells and enforce an order with respect to the method of operator to prevent waste of gas as prohibited by the statute.

Wells within the city, for which permits have been issued, were being drilled according to the regulations prescribed by the ordinance, according to John W. Van Meter, building commissioner, who announced that E. D. Lumsden had begun supervision in the field as the city's temporary chief oil and gas inspector.

The derrick for the test well in Lincoln Park was completed, and the Wirt Franklin Petroleum Co. is about ready to start drilling there, officials reported.

Construction of a swimming pool and other expensive permanent improvements in the park probably will have to wait until the test shows whether the park is going to be converted into an oil field, Fry said.

Biggest Well Drilled in New Mexico

Shell Corporation's Well in Hobbs Pool, Lea County, Estimated From 8,000 Bbls. to 12,000 Bbls. Amerada Well May Be Duplicate

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain area

DENVER, Colo., June 16.—The Shell Petroleum Corp.'s No. 1 State in the Hobbs Pool in Lea County was opened for a short test and indicates it is the biggest well ever drilled in the State. It is expected to make not less than 8,000 bbls. a day and may go to 10,000 or 12,000 bbls. Three new locations have been made by the Midwest Refining Co. in the Hobbs Pool and a number of the drilling wells are close to the pay. The Amerada Petroleum Corp.'s No. 1-A State gives indications of duplicating the Shell well. The Midwest's No. 33 Byers is flowing by heads while drilling and oil and gas shows are reported in most of the wells. Cranfill & Reynolds' No. 1-C State in the Cooper area is making 210 bbls. daily, of which 32 per cent is water, after plugging back. Maljamar Oil & Gas Co.'s No. 3 Baish, in the Maljamar area, is logging high and making 4,000,000 feet of gas.

Utah reported the drilling in of a carbon dioxide gas well which froze up the tools before the big pay could be reached. It is to be used to make dry ice.

Midwest Refining Co. has a gas discovery in its Bell Rock test in Moffat County, making 20,000,000 to 30,000,000 feet a day from the Mesa Verde. Texas Production Co. has a new producer on the Moffat Dome in the Sundance, Continental Oil Co. is to drill a Pennsylvanian test in Larimer County, and the Jones interests of Kansas City are starting a deep test in a 28-inch hole in the southeastern corner of the State.

Prairie Oil & Gas Co. has a 1,250-bbl. well in the Tensleep formation on the Little Lost Soldier Dome in Sweetwater County, Wyoming, the first test to that horizon on the structure. Several good completions were reported in the Osage Field in northeastern Wyoming. Productive area of Oregon Basin Field probably will be extended by Oneida Oil Co.'s No. 1 Beck, which looks like a good producer.

NEW MEXICO

Hobbs Area—Lea County

Shell Petroleum Corp.'s No. 1 State, SE SW NE Section 32-18-38, in the Hobbs Pool in Lea County, New Mexico, which caused intense excitement last week when it blew in at 4,004 feet making large quantities of gas and spraying oil for 12 hours before it was brought under control, was opened for a test on June 11. Flowing wide open through the casing and the 4-inch tubing, it made 437 bbls. the first hour of which 67 per cent was water. The second hour it made 408 bbls. and the water was reduced to 5 per cent. With the oil, it produced gas at the rate of 39,000,000 feet a day with a pressure of 1,400 pounds. At the end of the two-hour period the well was beaned down to the 4-inch tubing and through this string it made 1,686 bbls., or an average of 153 bbls. an hour during the next 11 hours and gas at the rate of 25,000,000 feet a day. It was then shut in. At the end of the test, the oil showed 15 per cent basic sediment and 1 per cent water. The showing of water in the first hour and the basic sediment at the end of the test is not considered important as the well had considerable mud and water in the hole which was run in an attempt to fill a cavity and mud off the gas, and water had been on the sand for some time. When the well fully cleans itself and is given a prolonged production test, the basic sediment is expected to disappear almost entirely as there is nothing to indicate any bottom water. Estimates as to what the well will make vary, but the minimum named is 8,000 bbls. a day, while 10,000 bbls. is probable and 12,000 bbls. not unlikely. It is conceded to be the best well ever completed in New Mexico. It found the pay close to 100 feet higher than in the Humble's No. 1 Bowers.

The Amerada Petroleum Corp.'s No. 1-A State, SW NW NE, Section 32-18-38, one-fourth of a mile northwest of the Shell well, is reported to have struck a pay at 3,100 feet, making 30,000,000 feet of gas and spraying around 800 bbls. of oil.

Three Locations

Three new locations made by the Midwest Refining Co. in the Hobbs area brought the total number of active operations up to 44. Many drilling wells are getting near the big pay and most of them report oil and gas showings in the upper breaks in the lime. Most of them are in territory considered almost certain to produce oil, and interest lies principally in the size of the wells and the depths at which the pays are oncountered. Humble Oil & Refining Co.'s No. 1 Bowers, C NE SE Section 30-18-38, completed last January at a total depth of 4,106 feet, which recently has been on production, continues to hold up remarkably well. On June 5 it made 7,323 bbls. in 24 hours through a 4-inch flow line with 200 pounds back pressure. The elevation of this well is 3,659 feet and the big pay was at 4,058-4,106 feet. This information is repeated here because most of the present drilling reaches out in all directions from this well.

The three new Midwest locations are as follows: No. 26 State, C SE SE Section 4-19-38, an offset on the north to the discovery well brought in nearly two years ago; No. 8 State, C NW NW Section 10-19-38, an offset to the discovery on the east; and No. 3 State, NW NE SW Section 4-19-38, an offset on the east to the Texas Production Co.'s No. 1 McKinley. The first two are 660-foot locations against the 330-foot locations which mostly prevail farther to the north. No. 3 State is 2,310 feet from the south line and 1,650 feet from the west line of the southwest. Routine drilling operations include the following:

Drilling Operations

Prairie Oil & Gas Co.'s No. 1 Crump, NW cor. NE, Section 15-19-38, drilling at 3,650 feet in anhydrite, had oil and gas shows at 3,300 and 3,105 feet and a show of water at 3,225-45 feet. Its No. 2 Crump, one location to the south in the SW NW NE, Section 15-19-38, is drilling at 3,550 feet in anhydrite and lime and had oil and gas and water shows at 5,255-60 feet. Same company's No. 1 Selman, NW SW NE, Section 15-19-38, is drilling at 3,680 feet in anhydrite and lime. There were oil and gas shows at 3,205-70 feet and a show of water at 3,310-20 feet. Texas Production Co.'s No. 1 Selman, NW cor. SE, Section 15-19-38, cemented the 12½-inch at 163 feet. Midwest Refining Co.'s No. 1 State, NE cor. NW, Section 15-19-38, is drilling at 2,945 feet in lime and anhydrite and had shows of gas at 2,880 and 2,930 feet. Top of brown lime was at 2,875 feet and elevation 3,591 feet. Midwest's No. 13 State, SE NE NW, Section 15-19-38, is drilling at 3,180 feet in anhydrite and lime and had gas shows at 2,980 and 3,105 feet. This group of wells are believed to be within a short distance of the southeastern edge of the pool and not expected to be as sensational completions as those farther northwest.

Midwest Refining Co.'s No. 36 State, SE cor. SW, Section 10-19-38, cemented 8¼-inch at 4,016 feet, and the offset on the east, Walker Oil Corp.'s No. 2 Terry, SW cor. SE, Section 10-19-38, is drilling at 3,640 feet in anhydrite.

Midwest Refining Co.'s No. 33 Byers, SE SW NE, Section 4-19-38, half a mile northwest of the discovery well, is drilling at 3,170 feet with a hole full of oil and making flows by heads. Top of pay was at 3,150 feet. It did not stop to test. Same company's No. 8 State, C NW NW, Section 4-19-38, cemented 12½-inch at 250 feet. It commenced spudding May 30. Texas Production Co.'s No. 1 McKinley, NE NW SW, Section 4-19-38, is building rig.

Sun Oil Co.'s No. 1 McKinley, C NE NE, Section 5-19-38, is drilling in salt at 1,640 feet. Top of salt was at 1,616 feet and elevation 3,624 feet. Atlantic Production Co.'s No. 1 State, NE cor., Section 6-19-38, is digging cellar.

Hobbs High, Inc.'s No. 1 Tatum, NW SW SW, Section 35-18-38, more than 3 miles southeast of Humble's No. 1 Bowers, and farthest east of any drilling well, is making hole at 2,375 feet in salt. It topped the salt at 1,850 feet, or 700 feet lower than in the No. 1 Bowers.

Shell Petroleum Corp.'s No. 2 State, NW SW NE, Section 32-18-38, is bottomed at 2,673 feet and is repairing rig after a blowout. It struck an air pocket. Base of salt was at 2,495 feet and elevation 3,638 feet. Amerada Petroleum Corp.'s No. 1-A State, SW NW NE, Section 32-18-38, is drilling at 2,880 feet in anhydrite, and Gypsy Oil Co.'s No. 1 Grimes, NW cor., Section 32-18-38, is drilling at 3,525 feet. Ohio Oil Co.'s No. 1 State-Northrup, NE NW SE, Section 32-18-38, is drilling at 3,717 feet in anhydrite and had an oil and gas show at 3,668-78 feet. Same company's No. 2 State-Northrup, C SE SE, Section 32-18-38, is rigging up rotary.

Gas and Oil Shows

Empire Gas & Fuel Co.'s No. 1 Fowler, NE cor., Section 31-18-38, drilling at 3,235 feet in anhydrite and lime, had a gas show at 2,824-30 feet and an oil show at 3,163-78 feet.

Texas Production Co.'s No. 1-C State, NE cor., Section 25-18-37, is drilling at 2,750 feet in lime and anhydrite, and Texas Pacific Coal & Oil Co.'s No. 1-G State, SE cor., Section 24-18-37, is drilling at 3,755 feet in anhydrite. It had 1,000,000 feet of gas per day at 3,745-47 feet, the total gas being estimated at 2,000,000 feet.

Ohio Oil Co.'s No. 1 State, NE cor. SW, Section 30-18-38, drilling at 3,000 feet in anhydrite, had considerable gas at 2,832 feet. W. C. McBride, Inc.'s No. 1 McKinley, SE cor. NE, Section 30-18-38, is building rig. Amerada Petroleum Corp.'s No. 1 McKinley, NW cor., Section 30-18-38, is drilling at 3,480 feet in anhydrite and shale, and its No. 2 McKinley, SE cor. NW, Section 30, is drilling at 3,355 feet in anhydrite. It had an oil show at 3,355 feet. George F. Getty, Inc.'s No. 1 McKinley, SW cor. NE, Section 30-18-38, is drilling at 2,965 feet in anhydrite. It had gas shows at 2,782-88 and 2,806-13 feet. Same firm's No. 2 McKinley, SW SE NE, Section 30, is bailing to test casing, and its No. 3 McKinley, NW SE NE, Section 30, is a cellar. Humble Oil & Refining Co.'s No. 2-A Bowers, NW cor. SE, Section 30-

(Continued on Page 136)

NORTHERN SASKATCHEWAN HAS SHALLOW OIL AND GAS SHOWS

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, June 14.—Interest has been directed to a hitherto untested oil prospect in northern Saskatchewan by the reported striking of oil and gas shows in a shallow test for water at Kakwa, a new settlement on the Canadian National Railway not far west of the Manitoba-Saskatchewan boundary.

The strike is reported at a depth of 215 feet, where a fairly strong gas flow was met, with traces of oil. The escaping gas caught fire, and burned for some time before it could be extinguished, but it does not appear to be of commercial value. A number of oil claims were promptly staked on adjacent territory, and there has been a considerable influx of oil prospectors.

Railroad officials at Winnipeg state that oil and gas shows have been so widespread along the Sturgis cutoff in northeastern Saskatchewan that Canadian National Railway workers have experienced much difficulty in securing water. In addition to the Kakwa showing, a water well drilled at Reserve Junction had to be abandoned when oil was encountered at 115 feet. Another test for water is being drilled at Clemenceau, 14 miles south of Hudson's Bay Junction. The "Sturgis cutoff" now under construction is designed to shorten the route from southern and central Saskatchewan to the new Hudson's Bay Railway. Kakwa, where the heavy gas flow was encountered, is a short distance south of Hudson's Bay Junction, where westbound trains from Manitoba and eastbound trains from Saskatchewan meet en route to The Pas, the mining metropolis of northern Manitoba.

Little definite information is available as to the geology or oil prospects of northeastern Saskatchewan. In the Manitoba areas farther east occasional shallow oil shows have been reported in recent years, and some drilling has been done without commercial results.

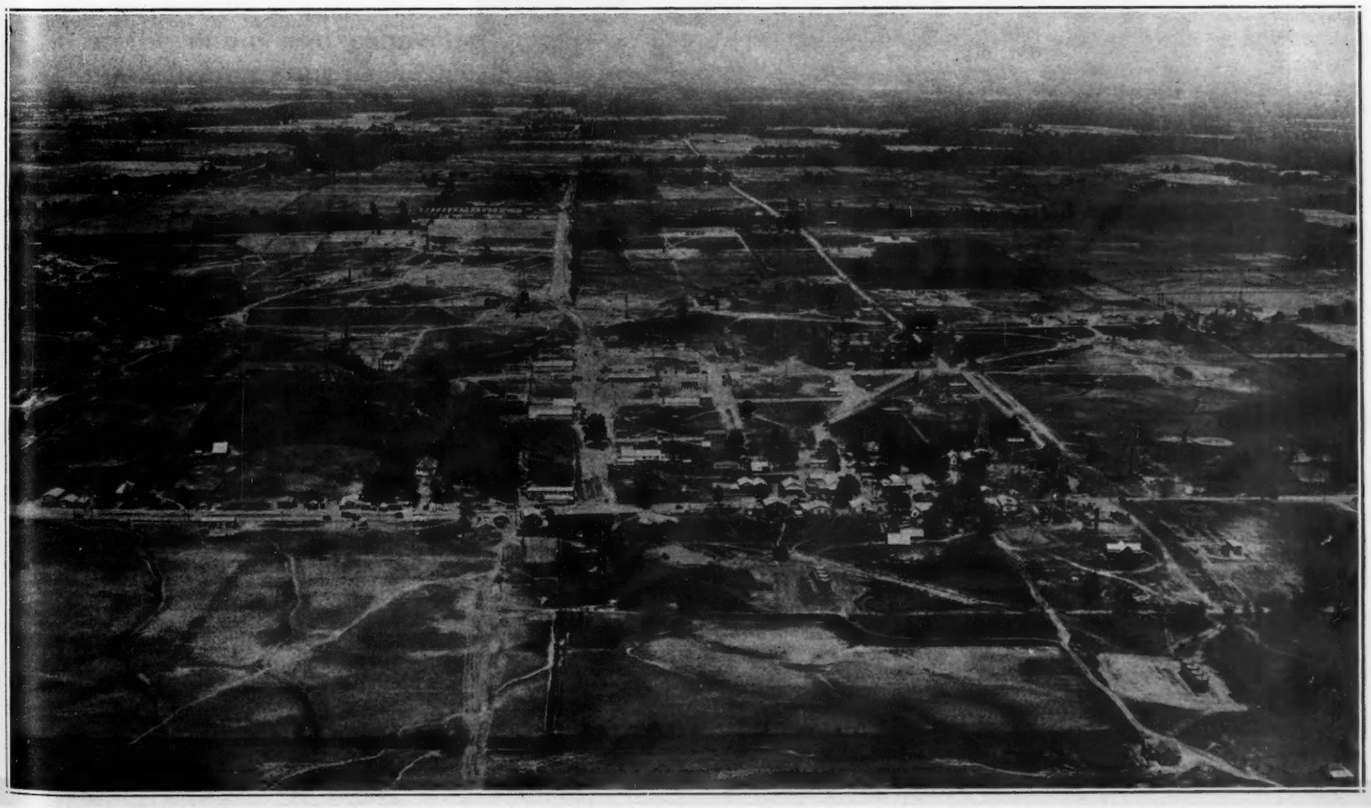
Geological information available indicates that the sedimentary formations, which throughout the three prairie provinces thin out and outcrop toward the north, are somewhat thicker in northern Saskatchewan than in either Manitoba, to the east, or Alberta to the west. Devonian and Cretaceous formations are apparently both present. Oil shales, apparently of commercial extent, are known to exist in the Pasquia Hills, and oil and gas showings have been met on the Nabo and Carrot Rivers. It is probable that the recent staking will be followed by attempted commercial development. The area, though unproven, looks like a good prospect for oil at comparatively shallow depth.

Red Coulee Field

In the international Red Coulee Field, Alberta Pacific Consolidated's No. 1, LSD 2, Section 3-1-16w4, on the Alberta end, is apparently a larger producer than anticipated, delivering 185 bbls. in a 20-hour test, or slightly over 200 bbls. a day, the largest producer in the Canadian end. In Southern Alberta Exploration's

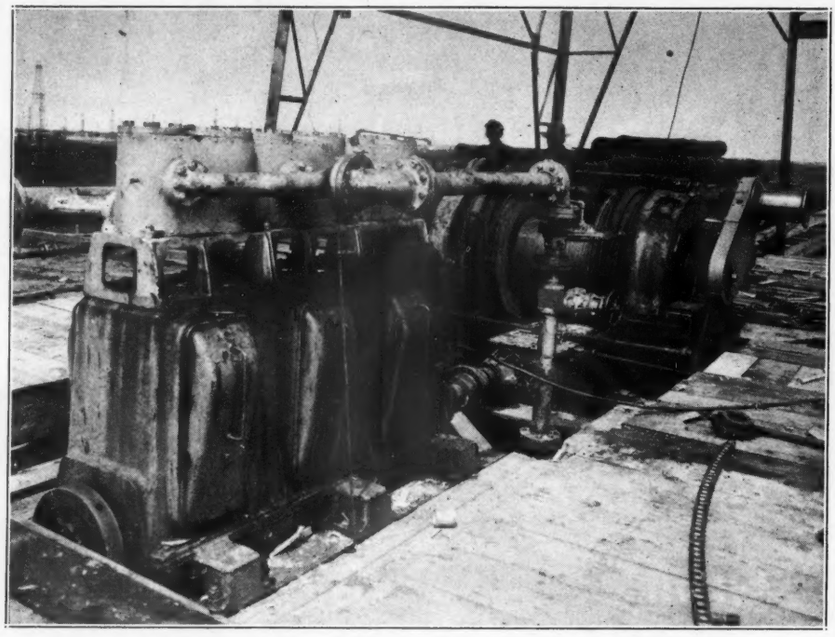
(Continued on Page 134)

AERIAL VIEWS OF THE TOWN OF VAN AND THE VAN FIELD IN TEXAS



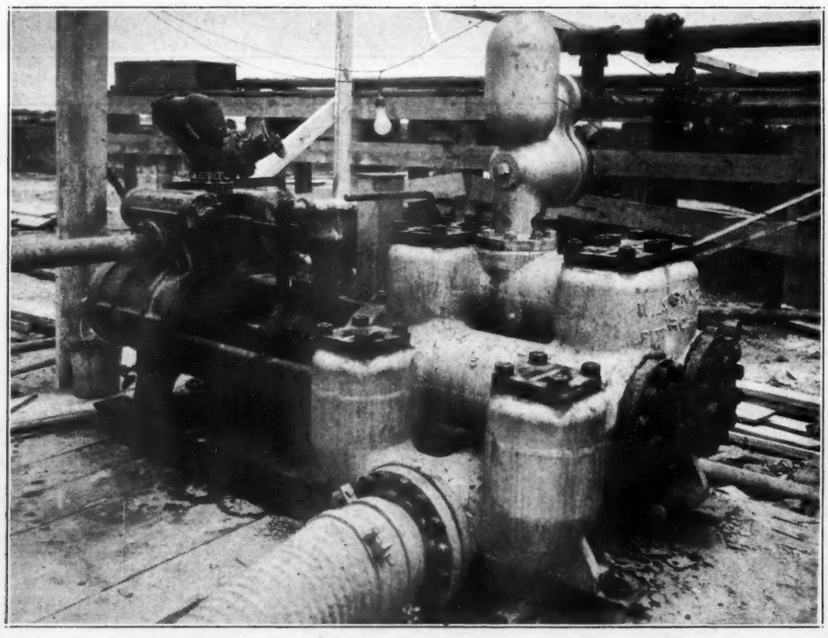
—Photo by Fairchild Aerial Surveys, Inc., Dallas, Tex.

Cut Drilling Cost



Installation of HYDRIL equipment at Cromwell Oil Company's No. 1 Reynolds, Oklahoma City.

This photograph clearly shows the absence of head boards, chain guards and braces, all are eliminated in HYDRIL. HYDRIL removes the disadvantages of obstructed floor space, greasy working parts and clumsy chain guards.



Installation of Wilson-Snyder Side Suction Pumps on Hydril rig of Mitchell Drilling Company's No. 2 Minnie Page—Wirt Franklin Petroleum Corporation lease.

This sturdy slush pump will handle any steam pressure necessary for deep well drilling. Its side suction feature assuring a steady flow of fluid to its cylinders. It will go to the next location, with the absolute minimum of repairs.

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Safety – Efficiency – Economy – All are combined when W-S Slush Pumps and HYDRIL are used.

COST REDUCING EQUIPMENT–That's what progressive operators of today want. Hydril and Wilson-Snyder Pumps–because they do, by actual operating tests–reduce shut-down losses, and minimize depreciation costs, and almost daily are becoming standard equipment for wide awake oil companies. It might be added that beside lower operating costs, the team of Hydril and Wilson-Snyder Pumps actually makes holes faster and straighter. This combination of pump and Rotary Equipment is capable of drilling 10,000-foot wells.

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The fluid end with side suction is an exclusive Wilson-Snyder design. A suction opening is provided on both sides of the pump and connections can be made to either one of the openings. Full volume of mud and the elimination of unnecessary friction is gained.

The suction openings are 10″ and this large opening, together with the easy flow of mud from the slush pit, results in the complete filling of the pump at each stroke.

This is of great importance when using the new high steam pressures.

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Eliminates 140 feet of dangerous chains and provides a clear floor space. With the direct drive, under the floor, vibration is eliminated, with the resulting wear on equipment minimized.

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Possible New Field Near Bakersfield

Shell's Weed Patch Well Exceedingly Promising. May Be in Temblor Sand So Prolific at Kettleman Hills Field

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., June 14.—The most important development in California during the week was the possible discovery of a new oil field by the Shell Oil Co. in the Weed Patch area 8 miles southeast of Bakersfield in Kern County. It is a little too early to say definitely that the Shell has opened up a new field as this well will not become a reality until oil is actually produced. The outlook is, however, exceedingly promising and the Shell deems it advisable to land a string of pipe preparatory to an early test. The wildcat in question is No. 1 Porter Day, located in Section 29-30-29, bottomed at 4,965 feet with 60 feet of saturated oil sand to its credit. Considerable difficulty was experienced in taking core samples because of heavy gas pressure with the result that the first two runs were lost. The third core was successfully recovered, however, and showed beyond a shadow of a doubt that the formation justified a production test. In order to keep the well under control and to facilitate drilling, the company has been obliged to reinforce its heavy rotary drilling mud. The hole is at present being reamed, at the conclusion of which casing will be landed and the well given a chance to make a bid for production.

The Shell has approximately 3,000 acres of land surrounding the well so that if a new field is opened up at Weed Patch it should control practically all of the possibly productive acreage. This precludes the possibility of competitive drilling as the company will only be obliged to fulfill normal lease requirements and should therefore be able to regulate production according to its refinery needs. No. 1 Porter Day is the second well which the Shell has drilled in the Weed Patch area up to the present time. The company's first project in this district was No. 1 Goff, in Section 30-30-29, which was abandoned presumably as a duster at 4,200 feet. Gossip around the field is that the Shell abandoned No. 1 Goff in order to divert attention away from the district so that it might subsequently be in a position to augment its holdings when other companies quitclaimed their protection acreage. At any rate, No. 1 Goff was only carried down to 4,200 feet before abandonment.

May Be in Temblor

The most interesting feature in connection with No. 1 Porter Day is the probability that the Shell's new oil sand is in the Temblor, which has proven so prolific at Kettleman Hills. It would be fallacious to make any comparison between Kettleman Hills and the Weed Patch in view of the limited amount of information available, but the fact remains, however, that a fairly definite correlation has been made. The Santa Margarita is apparently absent in the Weed Patch area as the Ethegoin pinched out at Union Avenue southeast of the Fruitvale Field, which lies about 5 miles northwest of Bakersfield. Another interesting feature in connection with the Weed Patch district is its relative position with respect to the Bear Mountain Sheer zone, along which are located the Fruitvale Field and the Union Avenue district which, up to the present, is still unproductive, although the Western Gulf had some excellent showings a few years ago. Another rather significant feature is the location of the Weed Patch area with respect to Commanche Point, where W. W. Stabler has been wildcatting for several years. This is particularly interesting because the Bear Mountain Sheer zone extends down through Fruitvale, Union Avenue and terminates at Commanche Point where there is evidence of a fairly promising structure. As the situation stands at present, the Weed Patch area is still wildcat territory, and, while it has possibilities, subsequent drilling may prove it to be a dud. In other words, hold everything for another few weeks, at the end of which some idea can be formed of its value.

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	68,690	492,395
Fuel oil	.....	.....	.....	.....	71,950	49,950
Diesel and gas oil	155,180	22,169	92,043	13,149	1,855,147	913,200
Gasoline	427,952	61,136	224,132	32,019	7,402,372	8,700,756
Naphtha distillate	.....	.....	.....	.....	.....	81,750
Coastwise—						
Crude oil	463,060	66,151	83,177	11,882	6,780,664	10,580,457
Fuel oil	409,893	58,556	320,734	45,819	7,794,979	9,645,769
Deisel and gas oil	52,759	7,537	25,721	3,674	842,231	661,163
Gasoline	354,639	50,663	209,060	29,866	5,108,369	4,651,260
Kerosene	.....	.....	.....	.....	71,497	29,456
Exports—						
Crude oil	102,853	14,693	183,194	26,171	2,870,533	2,237,630
Fuel oil	633,574	90,511	297,700	42,529	8,214,787	8,002,812
Diesel and gas oil	93,325	13,332	40,500	5,786	2,075,315	1,326,376
Gasoline	289,404	41,343	157,986	22,569	6,857,174	4,516,536
Kerosene	.....	.....	197,502	28,215	1,719,978	1,297,638
Lubricants	.....	.....	.....	.....	10,082	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	88,280	.....
Gasoline	.....	.....	129,730	18,533	641,680	1,050,732
Lubricants	.....	.....	.....	.....	5,866	.....
Coastwise—						
Fuel oil	72,379	10,340	43,766	6,252	1,676,022	1,171,109
Diesel and gas oil	.....	.....	8,650	1,236	152,544	285,800
Gasoline	75,010	10,716	93,836	13,405	1,836,179	2,028,265
Kerosene	.....	.....	.....	.....	119,387	50,490
Exports—						
Crude oil	.....	.....	.....	.....	3,075	121,603
Fuel oil	.....	.....	32,940	4,706	481,000	241,671
Diesel and gas oil	.....	.....	53,000	7,571	231,990	124,838
Gasoline	118,014	16,859	.....	.....	1,640,383	2,563,279
Kerosene	2,390	341	95,075	13,582	369,514	290,863
Lubricants	4,995	714	12,500	1,786	18,672	21,899

Playa Del Rey

Playa Del Rey is beginning to take on the appearance of a real oil field from a development standpoint and may possibly become a factor of importance in production shortly. The Star Petroleum Co.'s No. 1 Venice, finished during the latter part of last week doing 1,500 bbls. per day from 6,296 feet, has consistently built up, its present rated potential being 3,520 bbls. of unusually clean 24.1 gravity oil per day. No. 2 Venice, the Star's second project in this field, has just passed the 6,000-foot level and should be in a position to make a bid for production shortly. Several other wells in this field should also be completed soon and should consequently increase field production upon the construction of adequate pipe line facilities. During the early part of the current week, the Deuel Petroleum successfully completed No. 1 Venice flowing 865 bbls. of clean 24.1 gravity oil per day, but its production period was short lived as the well died about 36 hours after being brought in. This well drilled into schist at 6,139 feet and drilling operations were concluded at 6,142 feet after the bit had passed through the Recreation zone.

Ordinarily a well which drills into schist has very little possibility of developing commercial production, but at Playa Del Rey the oil sand rests just on top of schist. Many operators, therefore, drill down until the schist is encountered as this furnishes a definite marker for the conclusion of drilling operations. Both No. 1 Recreation, the Ohio Oil Co.'s discovery well, and No. 2 on the same lease drilled into schist before concluding work. The former well is flowing 1,405 bbls. daily, while the latter is making 1,330 bbls. per day. No. 2 Dickinson of the Ohio drilled into the schist at 6,322 feet and will be given a production test shortly as the top of the Recreation oil sand was encountered at 6,291 feet. No. 1 Brown, another well of the Ohio, should also be on production shortly as it topped the Recreation sand at 6,031 feet. The Venice Oil Syndicate should have its No. 1 Venice ready for completion within the next two weeks as this well passed the 6,000-foot level a few days ago. Several new wells have got under way during the past week and a number of others are scheduled to start drilling shortly. J. M. Devere and the Elmer Oil Co. each spudded in a new well during the week. C. C. Beem, No. 1 McDonald of the Exeter Oil Co., Knickerbocker Petroleum Co.'s No. 1 Venice, Ohio Oil Co.'s No. 1 Jay, York & Lockhart's No. 1 Del Rey and the McDonald Petroleum Co.'s No. 1 Venice are scheduled to be spudded in shortly.

Ocean Drilling

The discovery of oil at Playa Del Rey has revived the old question as to whether drilling operations should be permitted out in the open ocean similar to work at Elwood, Rincon and Carpinteria. Opponents of this proposal claim that tideland drilling is extremely detrimental to the beaches, all of which are used for bathing and recreational purposes. The question of initiating tideland development at Playa Del Rey was brought to the front this week when S. M. Salisbury petitioned the Los Angeles Playground Commission for permission to develop the ocean front. The issue, however, is still unsettled as final decision was held in abeyance until the Recreation Committee could go further into the subject. Salisbury presented the tentative plans for drilling 3,000 feet from shore between Avenues 31 and 60 by erecting steel coffer-dams on the shale at the bottom and filling them with concrete to make bases for 120-foot steel rigs. These, it was explained, would be connected with the shore by steel structures to support pipes and to carry materials to the wells. A 35-year lease is sought in return for which royalties will be paid the playground department. Baldwin Robertson, owner of three lots fronting the beach, protested what he termed would be destruction of the beauty of Santa Monica Bay by erecting wells out from shore. He declared that the playground department holds the beach in trust for the public and cannot use it for any other purpose than for public recreation. President Robert Weaver and other members of the commission, who on Tuesday inspected the area sought, held that the value of the beach for recreation purposes has been destroyed by the erection of derricks on private property adjoining it, that the department needs money for playground development and should take the opportunity to obtain it. It might be mentioned in this connection that the area along the beach front was subdivided a number of years ago into small lots, many of which have been leased. Several wells are already drilling along this strip within a stone's throw of the water.

Potrero

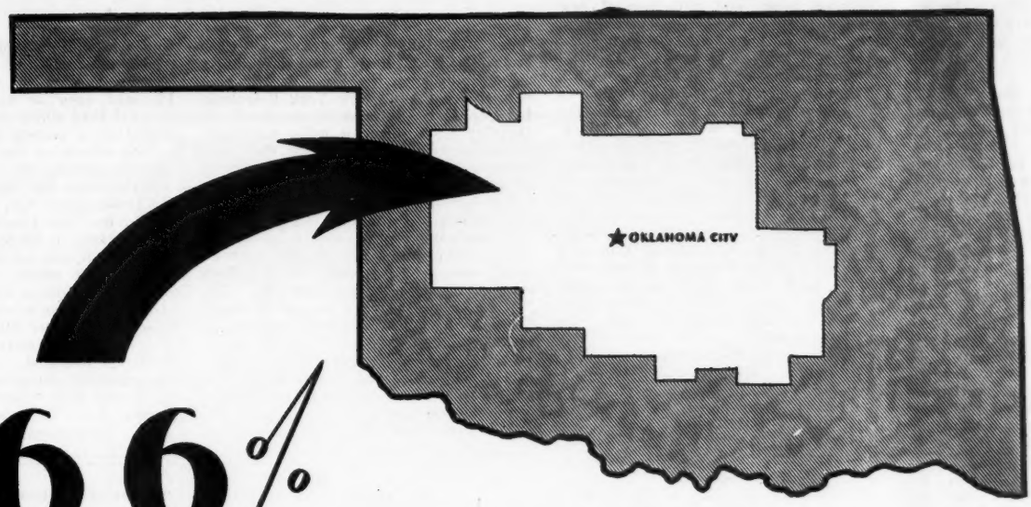
Two wells were finished in the Potrero Field of Los Angeles basin this week, one of which registered substantial production. This was No. 1 Globe of the Sunset Pacific Oil Co., which came in under a natural flow doing 1,740 bbls. of 39.6 gravity oil per day from 5,642 feet. This well, originally started by the Globe Lease & Royalty Co. and finished in the upper zone, was taken over by the Sunset Pacific Oil Co. several weeks ago and carried down to the new deep zone. The Sunset Pacific Oil Co. has experienced considerable success in its development work in the town lot section of the Potrero Field, being directly responsible for the discovery of the deep zone now undergoing development. The Associated Oil Co. stepped into the picture this week by recompleting No. 2 Prairie in the town lot section after redrilling and deepening it from the upper to the lower zone at 5,342 feet. This well, subsequently plugged back to 5,290 feet, was recompleted flowing 630 bbls. of 39.6 gravity oil per day. The Richfield Oil Co.'s No. 1 Hassen, a recent completion at 5,752 feet, is showing considerable water at last reports, production during the last 24 hours, 1,220 bbls., showing a cut of 40 per cent. The Sunset Pacific's No. 2 Inglewood is also showing an excessive water cut, due possibly to bottom water. Taylor & Murphy's No. 1 Potrero, on the other hand, is cutting less than 1 per cent, no increase in water having been shown since its recent completion doing 1,645 bbls. per day from 6,336 feet. Several new wells were spudded in during the week and a number of others are being prepared for early production tests.

Huntington Beach

Another deep test has been announced for Huntington Beach. Two independent operators, Durkee & Causey, have decided to seek new horizons below the 5,000-foot level. They plan to deepen White & Smithson's No. 1 Winckler, a former producing well in the town lot section at 4,595 feet. The Barnsdall's deep test on the Borchard property in the eastern part of the field is down to 6,080 feet in hard shale. Slight showings were encountered around 5,800 feet, but efforts to obtain a water shut-off at this point were unsuccessful and the hole is being carried farther down in hopes of finding another horizon. Some gray sand was cored just below the showings.

Ventura

The Associated Oil Co. added a new well to its list of producers in the Ventura Avenue Field during the week by finishing No. 88 Lloyd flowing 1,290 bbls. of 27.6 gravity oil and 1,723,000 feet of natural gas per day from 6,290 feet. Shortly after the completion of this well the Associated spudded in No. 89 Lloyd and is making preparations to begin making hole in No. 95 on the same lease. The Associated's next completion in this field should be No. 91 Lloyd, which is at the present time rotating ahead in the oil sand at 7,310 feet. The Shell spudded in three new wells at Ventura Avenue within the past three days and is grading locations for two more. Four tideland projects are making hole



66.6% of Oklahoma's Oil comes from this "Central Area"

The center of the oil production in Oklahoma has been moving toward Oklahoma City until the Central Area pictured above, on May 1, 1930, contained 66.2% of all the rigs and drilling wells in the state.

...and 66.6% of the state's oil is found in this same area. Contrast this with conditions in 1921, when but six-tenths of one percent of the state's oil was produced in this Central Area.

The Oklahoma City pool tops the list, with 289 wells drilling and 201 producing. Seminole, Earlsboro, Maud, St. Louis, the Logan, Caddo, Grady, and Payne County pools, and other Central Area activities contribute an additional 373 drilling wells.

All of these fields are more accessible from Oklahoma City, both by rail and by motor truck, than from any other distributing center in the state.

Dependable Electric power from Central Stations sufficient to take care of any demand is available at attractive industrial rates. This is also true of natural gas.

Ample facilities for the location of factory branches and warehouses of manufacturers of derricks, casing, tanks, batteries, separators and other oil field materials are obtainable.

There is also a plentiful supply of labor, both skilled and common.

Investigate the opportunities afforded you in locating in the center of the state's greatest oil development.

OKLAHOMA CITY
Chamber of Commerce
OKLAHOMA CITY, OKLAHOMA

Proved by Experience

May 29, 1930

Mr. Ed. Overholser, Pres.,
Oklahoma City Chamber of Commerce,
Oklahoma City, Oklahoma

Dear Mr. Overholser:

The reasons we moved to Oklahoma City four years ago were because it seemed to us, that it offered greater advantages than any other central point in the Mid-Continent district from the standpoint of service to our customers, availibility of transportation, living conditions, homes and schools.

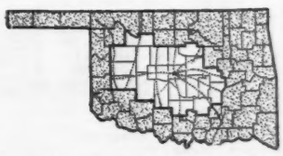
We are glad to tell you that we feel that our judgment has been more than verified, and we fully appreciate the many advantages we have enjoyed by locating in Oklahoma City.

Oklahoma City is beyond a doubt closer to the several major oil fields than any other point offering so many advantages. We are,

Sincerely yours,
American Iron & Machine Works Company
Earl W. Miller,
Vice-President

Write for Information

We want you to know more about the advantages of locating your business in Oklahoma City. We want you to know more about this market. Won't you write us, asking for this complete information?



The above map, showing the railroads in Central Oklahoma, shows the strategic position of Oklahoma City with reference to the Cenrtal Area.

in the Rincon Field of Ventura County and another, No. 4 Miley Hobson of the Richfield Oil Co., is scheduled to get under way within the next few weeks. This tideland development reflects the recent completion of No. 2 Ferguson of the General Petroleum, located out in the open ocean at the end of a 1,400-foot specially constructed pier.

The General Petroleum, discoverer of the Capitan Field of Santa Barbara County, finished its fifth successful completion when No. 5 Erburu was brought in flowing at the rate of 150 bbls. of unusually clean 20.9 gravity oil per day from 1,343 feet. This new producer, which was shut down subsequent to completion because of curtailment work, will probably be put on a compressor when production is resumed as it does not seem to have sufficient kick to maintain a sustained flow. Two new wells are getting under way in this field at the present time and both of them, No. 6 Erburu of the General Petroleum and No. 1 Orella of the Shell, should begin making hole soon. Potential production of the Elwood Field of Santa Barbara County has shown a substantial decline during the past several weeks, due principally to fewer completions and a normal decline in producing wells. It is quite probable, however, that the potential production of this field will be augmented by the completion of several new wells within the next few weeks. No. 15 Bell of the Barnsdall and Rio Grande, well No. 3 on tideland lease No. 92 of the Pacific Western Oil Co., well No. 3 on tideland permit No. 90 of the Elwood Exploration Co. and well No. 3 on tideland lease No. 89 of the Bankline Oil Co. should all be eligible for completion within the next 30 days.

Midway-Sunset

The Maricopa Flats section of the Midway-Sunset Field, which was the scene of a rather comprehensive drilling campaign several months ago, is now sustaining an orderly development program. The substantial reduction in drilling operations which has taken place has been reflected by fewer completions, and, while new wells may be anticipated from time to time, completions will become less frequent as time goes on. There are several wells under way at the present time, however, which may be listed for early completion. One of these is No. 4 Hazelton of the Barnsdall, at present standing cemented in the oil sand at 3,245 feet. The Barnsdall recently leased an additional 40 acres in Section 8-11-23 from Charles A. Son and Charles Crail. This newly acquired property adjoins acreage held by the Wellington Oil Co. on one side and the Doyle-Clune productive acreage on the other.

Drilling operations showed a further increase in the Mount Poso and Round Mountain Fields of Kern County during the week due to the starting of several additional holes, and with several new rigs going up the number of strings of tools in operation should be augmented within the next few weeks. This increased drilling will obviously result in the completion of new wells from time to time in both fields. At Mount Poso the General Petroleum is making preparations to complete No. 12 Heisen and is building rigs for Nos. 31 and 32 on the same lease. The Pacific Western Oil Co., in addition to spudding in No. 6 Glide Vedder, erected a new rig for No. 7 and instituted preparations to complete No. 5. In the Round Mountain Field the Chanslor-Canfield Midway Oil Co., George F. Getty, Shell and Honolulu Consolidated should all chalk up at least one new well for completion within the next few weeks.

Santa Fe Springs

There were several wells finished in the Santa Fe Springs Field of Los Angeles basin during the past week but all of them were relatively small. The Union Oil Co. headed the list with three wells which showed an aggregate initial daily production of 924 bbls. The Union's best well was No. 18 Farwell, which came in under a natural flow doing 479 bbls. of clean 32.6 gravity oil per day from 7,860 feet. On the Bell lease Nos. 51 and 52 were good for 395 bbls. and 150 bbls., respectively, the former having been completed at 7,925 feet and the latter at 7,935 feet. The Standard recompleted No. 7 Hepler after redrilling and deepening it to 8,010 feet but this well was only good for 50 bbls. of 30.9 gravity oil daily. Drilling operations in this field have shown a very substantial decline during the past few months due to depletion of the deep zones.

The Plymouth Petroleum finished a nice well in the Long Beach Field during the current week when No. 10 Merritt was brought in under a natural flow doing 2,955 bbls. of 29.7 gravity oil per day from 6,961 feet. This is one of the best wells finished in the Long Beach Field for several months and a check indicates that it may be the forerunner of several good wells in this field during the next 60 days. Drilling operations at Long Beach, unlike Santa Fe Springs, are still holding up in good shape. There has not been any appreciable reduction in the amount of drilling under way; in fact there have been more new wells started at Long Beach during the past 30 days than have been completed. There are quite a number of drilling projects rotating ahead in the oil sand at the

(Continued on Page 144)

LARGEST WILDCAT AT MT. PLEASANT ESTIMATED GOOD FOR 700 BBLS.

By Special Correspondent

MUSKEGON, Mich., June 14. — The largest wildcat oil well ever brought in as a producer in the State of Michigan was struck by the New York Petroleum Royalty Corp. this week on the P. J. Marthey lease about 6 miles northwest of the proven Mount Pleasant Field and 8 miles north and east of the city of Mount Pleasant.

The well was No. 1 Marthey, SW SW SE, Section 19-15n-3w, Denver Township, Isabella County, and it made 540 bbls. initial production in the first 24 hours, although originally it had been estimated good for about 700 bbls. The Dundee limestone was topped at 3,618 feet and the pay sands were first struck at 3,656 feet. At 3 feet in the sand the well began to flow and flowed regular every 1½ hours at the initial rate of 540 bbls. a day. The bottom of the hole is now at 3,660 feet.

The oil is 42.6 gravity and sweet, according to officials of the company. The well is believed to be either the discovery well of another oil pool in the Mount Pleasant area or an extension of the original field which may prove to be connected by a narrow producing streak.

Two offsets to No. 1 Marthey will be started immediately, one 660 feet north and the other 600 feet south. The Sias Oil Development Co., the East Ohio Gas Co., or the Ohio Producers & Refiners as they operate in Michigan, and the Chartiers Oil Co. also are starting wildcats on adjoining or nearby leases. The Dixie Oil Co. and Gibson-Johnson-Borden, Inc., also are expected to start wells on nearby leases in the near future.

A flow of gas estimated at more than 1,000,000 feet a day also was struck in the Marshall formation a week ago on the Lucius Cole lease by Gibson-Johnson-Borden, Inc. Drillers are now trying to

(Continued on Page 136)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Union, No. 1 Orchard Dale, Los Angeles Co.	10- 3-11	811	sd. drilling
Clearwater Oil Co., No. 1 Bellflower, Los Angeles Co.	21- 3-12	5,360	br. sh. drilling
Burlingham Pet., No. 1 Compton, Los Angeles Co.	17- 3-13	3,488	sd. sh. drilling
Diller, W., No. 1 Watts, Los Angeles Co.	8- 3-17	6,825	gr. sd. drilling
Crimson Pet., No. 1 Compton, Los Angeles Co.	22- 3-13	130	suspended
Ohio, No. 1 Moneta, Los Angeles Co.	35- 3-14	5,680	hd. sd. drilling
Guajome Oil Co., No. 1 El Nido, Los Angeles Co.	33- 3-14	mtl.	building rig
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	6,525	suspended
Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	488	sd. drilling
McMahon & McDonald, No. 1 Watts, Los Angeles Co.	12- 3-14	2,870	hd. sd. drilling
Tri-State Oil Co., No. 1 Watts, Los Angeles Co.	12- 3-14	rig	rigging up
Republic Pet., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	3,712	sd. drilling
Rio Grande Oil Co., No. 1 Watson, Los Angeles Co.	17- 4-13	5,630	cleaning out
Shell, No. 1 Van Nuys, Los Angeles Co.	19- 2-15	3,014	sd. sh. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
West Amer. Pet., No. 1 Puente, Los Angeles Co.	14- 2-10	412	sd. drilling
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	3,660	suspended
Bardeen Pet., No. 1 Puente, Los Angeles Co.	9- 2-10	650	sd. sh. drilling
Sherman, J. W., No. 1 Puente, Los Angeles Co.	33- 2- 8	850	suspended
Keck & Hall, No. 1 Puente, Los Angeles Co.	32- 2- 8	1,120	shut in
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	2,491	hd. sd. drilling
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	1,950	suspended
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	4,915	sd. sh. drilling
Consolidated Oil Co., No. 1 Newhall, Los Angeles Co.	8- 3-16	1,995	br. sh. drilling
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	1,268	br. sh. drilling
Pioneer Pet., No. 1 Newhall, Los Angeles Co.	14- 3-16	2,838	suspended
Union, No. 1 Coyote, Sansinena, Los Angeles Co.	30- 2-10	3,671	br. sh. drilling
Tureco Oil Co., No. 1 Whittier, Los Angeles Co.	29- 2-11	4,280	sd. sh. drilling
Western Gulf, No. 1 Brea Canyon, Los Angeles Co.	28- 2- 9	5,202	hd. sd. drilling
Standard, No. 1 Bastanchury, Coyote, Orange Co.	21- 3-10	5,777	oil sand
Graham & Loftus, No. 1 Coyote, Orange Co.	18- 3- 9	4,004	hd. sd. drilling
Union Oil Co., No. 1 Richfield, Orange Co.	13- 3- 9	4,680	hd. sd. drilling
Simmel, L. G., No. 1 Yorba Linda, Orange Co.	21- 3- 9	1,780	cemented
Mesa Pet., No. 1 Newport, Orange Co.	1- 6-10	4,910	suspended
Hall, H. L., No. 1 Newport, Orange Co.	26- 6-10	790	suspended
Standard, No. 1 Newport, Orange Co.	26- 6-10	782	cleaning out
Fidelity Pet. Co., No. 1-A Murrietta, Riverside Co.	23- 7- 3	701	cleaning out
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,560	suspended
Imperial Valley Oil Co., well No. 1, Imperial Co.	32-11-10	2,980	suspended
McGregor Synd., No. 1 Del Mar, San Diego Co.	17-14- 3	1,265	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	17-13- 4	2,418	hd. sd. drilling
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	2,400	gr. sd. drilling
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,525	fishing
Duncan, N. I., No. 1 Mohave, San Bernardino Co.	8- 4- 6	rig	suspended
Girard & Grimes, No. 1 Corona, San Bernardino Co.	8- 2- 8	1,549	suspended

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	4,600	testing
Universal Consd., No. 1 Pt. Conception, Santa Barbara Co.	30- 5-34	2,800	hd. sd. drilling
Prairie Oil Co., No. 1 Lompoc, Santa Barbara Co.	15- 7-35	3,280	hd. sd. drilling
Vaqueros Oil Co., No. 1 Purisima, Santa Barbara Co.	5- 7-33	2,310	br. sh. drilling
Fields Gasoline Co., No. 1 Santa Maria, Santa Barbara Co.	8- 9-33	3,704	set pipe
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	1,877	br. sh. drilling
Duell Pet. Co., No. 1 Santa Ynez, Santa Barbara Co.	9- 7-30	2,830	hd. sd. drilling
Carey, A., No. 1 Goleta, Santa Barba a Co.	1- 4-28	2,880	suspended
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	1,016	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	1,026	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,600	cemented
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	1,035	suspended
General Pet., No. 143 Goleta, Santa Barbara Co.	21- 4-28	1,040	suspended
Boles Oil Co., No. 140 Goleta, Santa Barbara Co.	22- 4-28	50	suspended
Ring Oil Co., No. 1 Goleta, Santa Barbara Co.	16- 4-28	1,030	sd. sh. drilling
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	1,032	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
Macmillan Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	1,046	redrilling
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	rig	rigging up
Caldwell Brown, No. 159 Goleta, Santa Barbara Co.	24- 4-29	1,040	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	1,035	suspended
Frazer & Oliver, No. 173 Capitan, Santa Barbara Co.	4- 4-30	101	suspended
Indian Pet., No. 174 Capitan, Santa Barbara Co.	4- 4-30	1,732	abandoned
McLaine, W. L., No. 175 Capitan, Santa Barbara Co.	4- 4-30	30	suspended
Durkee, R. S., No. 176 Capitan, Santa Barbara Co.	4- 4-30	30	suspended
Cunningham, W., No. 177 Capitan, Santa Barbara Co.	4- 4-30	30	suspended
Oakburn Oil Co., No. 168 Capitan, Santa Barbara Co.	4- 4-30	370	suspended
Oakburn Oil Co., No. 169 Capitan, Santa Barbara Co.	4- 4-30	200	suspended
Oakburn Oil Co., No. 170 Capitan, Santa Barbara Co.	4- 4-30	1,302	shut in
Oakburn Oil Co., No. 171 Capitan, Santa Barbara Co.	4- 4-30	300	suspended
Oakburn Oil Co., No. 172 Capitan, Santa Barbara Co.	4- 4-30	325	suspended
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co.	20-10-35	4,531	fishing
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Shell, No. 1 Summerland, Santa Barbara Co.	18- 4-25	3,402	br. sh. drilling
Standard, No. 2 Casitas, Santa Barbara Co.	26- 4-25	....	grading
Continental, Tideland permit No. 121, Santa Barbara Co.	33- 4-25	960	sd. sh. drilling
Continental, Tideland permit No. 122, Santa Barbara Co.	33- 4-25	1,020	suspended
Continental, Tideland permit No. 123, Santa Barbara Co.	33- 4-25	570	sd. sh. drilling
Continental, Tideland permit No. 124, Santa Barbara Co.	33- 4-25	5,400	sd. sh. drilling
Continental, Tideland permit No. 124-A, Santa Barbara Co.	33- 4-25	418	suspended
Continental, Tideland permit No. 125, Santa Barbara Co.	33- 4-25	816	sd. drilling
Continental, Tideland permit No. 126, Santa Barbara Co.	33- 4-25	974	sd. sh. drilling
Continental, Tideland permit No. 127, Santa Barbara Co.	33- 4-25	616	sd. sh. drilling
Continental, Tideland permit No. 128, Santa Barbara Co.	33- 4-25	766	sd. sh. drilling
Continental, Tideland permit No. 129, Santa Barbara Co.	33- 4-25	732	sd. sh. drilling
Exeter Oil Co., Tideland permit No. 163, Santa Barbara	32- 4-25	76	suspended
Getty, George F., No. 120 Carpinteria, Santa Barbara Co.	32- 4-25	1,024	suspended
Getty, George F., No. 130 Carpinteria, Santa Barbara Co.	32- 4-25	1,029	suspended
Shell, No. 5 Oxnard, Ventura Co.	14- 2-20	1,411	sd. sh. drilling
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	8,529	redrilling
Prairie Oil & Gas, No. 1 Ventura, Ventura Co.	30- 3-22	5,800	sd. sh. drilling
Bolsa Chica, No. 1-A Temescal, Ventura Co.	4- 4-18	2,343	cleaning out
Fennell, E. A., No. 1 Lankershim, Ventura Co.	13- 4-19	1,660	suspended
General Pet., No. 1 Fillmore, Ventura Co.	6- 3-19	2,350	sd. sh. drilling
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	1,990	hd. sd. drilling
Camarillo Synd., No. 1 Camarillo, Ventura Co.	33- 2-20	399	suspended
Pure Oil Co., No. 1 S. P. Canyon, Ventura Co.	15- 4-21	mtl.	building rig
Milham Explt'n, No. 9 Buttonwillow, Kern Co.	6-28-23	4,990	suspended
General Pet., No. 1 Buttonwillow, Kern Co.	6-28-23	2,706	suspended
Shell, No. 1 Lerdo, Kern Co.	23-28-26	3,900	sd. sh. drilling
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	4,965	oil sand
Shell, No. 1 Edison, Kern Co.	33-29-29	4,950	hd. sd. drilling
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	2,130	suspended
Sayre, F. M., No. 1 Edison, Kern Co.	5-30-29	4,220	cleaning out
Helen Pet., No. 1 Jasmine, Kern Co.	23-25-27	2,460	sd. sh. drilling
Shell, No. 1 Semitropic, Kern Co.	17-27-23	2,540	suspended
Moran & DeCamp, No. 1 Mojave, Kern Co.	26-10-14	505	hd. sd. drilling
Bardeen, H. A., No. 1 San Emidio, Kern Co.	18-10-23	960	cleaning out
Bardeen, H. A., No. 2 San Emidio, Kern Co.	10-10-23	2,400	sd. sh. drilling
Stabler, W. W., No. 1 Commanche Pt., Kern Co.	4-11-18	953	sd. sh. drilling
Wrenn, J., No. 1 Antelope Plains, Kern Co.	32-25-17	430	sd. sh. drilling
Richfield, No. 1 Kreyenhagen, Fresno Co.	33-22-16	1,000	sd. sh. drilling
Currency Pet. Co., No. 1 Jacalitos, Fresno Co.	28-21-14	3,680	suspended
Knudsen, John, No. 1 Jacalitos, Fresno Co.	14-21-14	1,847	suspended
Petroleum Securities, No. 2 Huron, Fresno Co.	28-20-16	7,390	suspended
Fresno Madera Oil Co., No. 1 Clovis, Fresno Co.	18-22-21	4,470	hd. sd. drilling
Western Gulf, No. 1 Penoche Valley, Fresno Co.	26-15-12	5,361	gr. sd. drilling
Panorama Oil Co., well No. 1, San Luis Obispo Co.	7-31-21	4,019	fishing
Libby Pet., No. 1 Shandon, San Luis Obispo Co.	31-27-15	4,383	suspended
Paso Robles Synd., No. 1 Creston, San Luis Obispo Co.	27-27-11	3,941	cleaning out
Union, No. 1 King City, Monterey Co.	8-22- 8	3,250	suspended
Standard, No. 1 King City, Monterey Co.	23-22- 7	4,468	br. sh. drilling
Pacific Inland Oil Co., No. 1 Parkfield, Monterey Co.	19-23-15	781	suspended
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	4,310	cleaning out
Penn Western, No. 1 Tulare Lake, Kings Co.	24-21-18	1,338	suspended
Wellport Oil Co., No. 1 Devils Den, Kings Co.	9-24-17	3,890	sd. sh. drilling
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	3,380	hd. sd. drilling
Barnhart Trust, No. 1 Oakdale, San Joaquin Co.	3- 2-10	3,354	sd. sh. drilling
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	587	sd. sh. drilling
White, Roy, No. 1 Pixley, Tulare Co.	8-23-26	4,022	set pipe
Terra Bella Oil Co., No. 1 Porterville, Tulare Co.	35-22-27	910	sd. sh. drilling
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	650	sd. drilling

10 Reasons Why the Type "XG" Compressor Will Give You Good Service

1. Its design is correct, and the materials and workmanship entering into it are the best obtainable. It is easy to install, easy to operate, and dependable.
2. Its overall efficiency is high.
3. It is conservatively rated, and has ample reserve power.
4. Ingersoll-Rand plate-valve compressing cylinders are recognized for their efficiency in every industry where compressors are used.
5. It is readily accessible and all adjustments can be made easily and quickly.
6. It is unusually compact because of the general design and because, by counterweighting the flywheel instead of the crank, a saving of 2 feet in length is effected, conserving building space.
7. All power-end parts, even to valves and valve stems, are interchangeable as to cylinders.
8. It is flood lubricated.
9. It can be operated with either top or bottom exhaust.
10. It shows good operating economy.

The "XG" is a 4-cycle, horizontal, duplex unit rated 180 B.Hp. at 200 r.p.m. Cylinders are available for all pressures, or for vacuum service.

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Lima Field Being Thoroughly Tested

Considerable Work Being Done on the Outer Edges of Old Trenton Rock Area on Both North and South Sides of the Field

By Whit

Staff Correspondent, Central West Fields

FINDLAY, Ohio., June 16.—Little change is noticeable in the Central West Field so far as development work goes, as the Central Ohio division maintains its usual activity as does Indiana and Illinois, while the old Lima Field is being more thoroughly tested than at any period for many years, considerable work being done on the outer edges of the old Trenton Rock area, in both the north and south sides of the field which is close to 200 miles in a northeast and southwest direction.

In the old Lima Field of northwestern Ohio, the Tiffin Field in Seneca County and the southern part of Hancock County and northern part of Hardin County are attracting operators hunting for natural gas, as there is a ready market for gas as well as oil, but more so for gas as it gets a quicker market. In the attempt to extend the producing areas to both the north and south of the old field, a few dry holes are being found but as soon as one is finished another is started.

In Seneca County, what is known as the Tiffin Field, the Kansas-Ohio Oil & Gas Co.'s No. 5 well, 600 feet from the south and east lines of the Lawrence P. Dillon farm, on the old oil map as the J. Moses farm, SE, Section 1, Jackson Township, pumped 1 bbl. from 1,298 to 173 feet, or 175 feet into the Trenton. R. Hutton and others found a dry hole, 600 feet from the north line and 200 from the south line of the Charles Ash farm, NW¼, Section 12, same township, from 1,302-70 feet. In Seneca Township, W. C. Parmalee's test in the southwest corner of the David Zeis farm, SW, Section 27, was dry from 1,484 to 1,728 feet, or 244 feet in the Trenton formation. In Pleasants Township, same county, C. L. Messer and others' second test, 200 feet from the south line and 800 from the east line of the C. E. Dennis, better known on the old oil map as the J. Zimmerman farm, SW, Section 30, is a gas well in the Trenton from 1,437 to 1,539 feet. Marvela Oil & Gas Co. also has a gas well in No. 5 well, 600 feet from the south and west lines of the Milo Saul farm, Section 30, same township, from 1,432 to 1,537 feet.

Trenton Rock Oil Co.'s test, 200 feet from the south line and 1,250 feet from the west line of the A. Schott farm, SW, Section 22, Harris Township, Ottawa County, drilled for gas, showed an initial production of 1 bbl. of oil from 1,297 to 1,332 feet. Gibsonburg Oil Co.'s teest, 1,300 feet from the south line and 200 from the west line of the G. Damale, SW¼, Section 23, same township, produced but one-half barrel, with little gas.

Northeast of Lima in Bath Township, Allen County, C. A. and F. J. Peavey's No. 4, 750 feet from the north line and 700 feet from the west line of the C. A. Hoover, NW, Section 24, pumped an initial of 15 bbls. from 1,319-55 feet. Roalman & Pease are drilling No. 3 Nancy E. Leedy, Section 14, and B. L. Carman and others' No. 3 W. A. Carroll, Section 13, same township. Kelley Brothers are drilling on the Earl D. Brown, Section 19, Perry Township, and Metzger Brothers drilling No. 5 Henry Metzker farm, Section 22, Spencer Township, same county.

In Hancock County, Bear Tooth Oil Co.'s second test, 450 feet from the north line and 810 feet from the west line of the C. R. Watson farm, SW, Section 10, Liberty Township, pumped 10 bbls. from 1,268 to 1,338 feet.

In northern Hardin County, the Kemrow Co. is drilling No. 1 Elmer Kreitzler 120 acres, Section 13, Cessna Township. Geiger Oil Co. is drilling No. 2 Grant Geiger, same section. Hummell-Mick and others are drilling No. 1 Ora T. Price 80 acres, same section.

CENTRAL OHIO

Thirty-three completions were reported from the Central Ohio area with a few oil producers, some gas wells and an unusual number of dry holes.

In Ashland County, Lake Township, Robinson and others, or the Great Lakes Oil Co.'s No. 6 John F. Smith, Section 3, pumped 3 bbls. after a shot from 681 to 754 feet. Same company is drilling No. 2 W. S. Wolfe, Section 66, and O. C. Smith and others' No. 2 Henry Mosher farm, Section 22, was dry from 567 to 577 feet. In Perry Township, Coast and others' No. 8 Edward Barnhart farm, Section 29, was a duster, there being but a slight showing of oil from 725 to 764 feet. No. 9, same farm, is drilling. In Jackson Township, the Ohio Fuel Gas Co.'s No. 1-5,110 M. W. Connell farm, Section 6, is reported dry.

In Medina County, Chatham Township, the Oko Oil & Gas Co.'s No. 36 Watson-Sandord farm, Lot 10, is reported good for 5 bbls. In Lafayette Township, Ohio Fuel Gas Co. found a gas well in No. 1-4,995 on the Anna Sclepchak farm, Section 23, also a gas well in No. 2-5,114 Clara M. Jones, Section 29, same township.

In Lorain County, Ridgeville Township, the Kemrow Co.'s test on the F. L. and W. P. Chamberlain, Lot 4, is a duster.

Wayne County reports but one completion, Faulkner and others' second test on the Ashley Smyser, Section 25, which was a light gas well from 650 to 653 feet.

Holmes County reports but one completion, a gas well drilled by the Ohio Fuel Gas Co. in No. 1-4,917 Alonzo McFadden, Section 6, Richland Township. East Ohio Gas Co. is drilling No. 3 Hugh McCullough farm, Section 28, Hardy Township.

In Cuyahoga County, Ohio Fuel Gas Co.'s No. 1-5,087 Nathan Seigel farm, Section 5, Olmstead Township, is reported dry.

Richland County has a new duster drilled by the Meyers Oil & Gas Co. on the Henry Folk farm, Section 17, Weller Township, from 418 to 440 feet.

In Knox County, the Ohio Fuel Gas Co. has a gas well in No. 2-5,067 J. A. Reed farm, Section 11.

In Summitt County, F. A. Brendall and others' test on the William H. Humbert, Section 31, Greene Township, is a fair gas well from 3,985 to 4,110 feet. Same party drilling on the A. G. Keck, Section 7, same township.

In Licking County, Fallsburg Township, the Emerald Petroleum Co.'s No. 4 on the Earl Rine, Section 12, is reported with an initial of 35 bbls. from 2,895 to 2,952 feet. Norpell and others are drilling No. 1 W. T. Booth, Section 13, and Wittmer Properties, trustee, is drilling No. 4 Sam Mossholder, same section.

Muskingum County reports a couple of good oil wells, Crawley and others' No. 3 on the Nelson McCoy Co.'s land, Section 3, Clay County, had an initial of 80 bbls. from 3,438-95 feet. William Kline and others' No. 4 on the Ramsbottom, same section, produced an initial of 55 bbls. from 3,648 to 3,702 feet, total depth 3,707 feet. The Pure Oil Co.'s second test on the Albert Holman farm, Section 12, Jackson Township, same county, is a gas well. Wittmer Properties, is drilling a second test on the I. B. Baker, Section 11, Perry Township.

In Athens County, Berne Township, the Ohio Fuel Gas Co. has a gas well in No. 4-5,076 Levi J. Elliott, Section 30, from 1,472-92 feet, total depth 1,498 feet. Orange Gas Co. is drilling a second test on the S. R. Coon, Section 19, Carthage Township.

In Meigs County, Tyree and others' No. 18 on the William Carnahan, Section 11, Sutton Township, pumped 2 bbls. from the Second Cow Run sand, from 676 to 700 feet. In Rutland Township, Ohio Fuel Gas Co.'s No. 2-5,073 J. W. Carr, Sections 18-24, is a gas well in the Second Cow Run sand from 629 to 637 feet. Chase and others' test on the J. A. Colwell, Section 8, is an average gas producer in the same formation from 462 to 471 feet, and Kiggins and others' second test on the E. M. Gray, Section 20, is a fair gas well in the Maxon sand from 738 to 746 feet. Chase and others are starting a test on the T. J. Ledlie, Section 26, same township. In Salisbury Township, Cochrane and others are drilling on the Roy C. Sansbury, Section 35. In Scipo Township, Kiggins and others are drilling No. 8 Lydia Rowley, Section 13, and Tyree and others are starting a test on the F. R. Alkire, Section 14.

In Jackson County, Lick Township, Ohio Fuel Gas Co. has a gas well in No. 2-5,070 Scott Alshere farm, Lot 92. The gas was found in the Clinton lime from 2,435-45 feet, total depth 2,448 feet.

In Vinton County, Knox Township, the Moore Oil & Gas Co. has a 2-bbl. pumper on the J. H. Moore farm, Section 10, in the Berea sand from 1,030-33 feet. Co-operative Oil Co.'s No. 5 Cameron Clark, Section 4, from 996 to 1,037 feet, filled the hole full of water, and is dry. Powers Oil & Gas Co. reports a duster in No. 3 on the X. S. Clark, same section. H. C. Farmer and others' No. 1 C. E. Stout farm, same section, showed 1 bbl. from the Berea sand from 989 to 1,002 feet.

In Lawrence County, Perry Township, the Ohio Fuel Gas Co.'s No. 1-5,005 John C. Clay farm reported dry in the Medina formation at 3,347 feet. C. C. Wolfe and others' test on the Ida McCoon, Section 33, Rome Township, is a fair gas well at 3,168 feet.

In Tuscarawas County, Oxford Township, T. Lynch and others have a gas well in a second test on the Reuben T. McKeen, Section 21.

In Fairfield County, Richland Township, Perry Sturm and others have a light gas well in a second test on the Jeff and George Shaw, Section 32, in the Berea sand from 801 to 807 feet.

In Stark County, F. A. Brendall and others are drilling on the L. J. Baucher farm, Section 1, Lawrence Township.

In Belmont County, Somerset Township, Peters & Patterson's No. 1 W. C. Wheatley, Sections 27-28, is a light gas well in the Berea sand from 1,847-53 feet, total depth 1,856 feet.

In Morgan County, Marion Township, the Ohio Fuel Gas Co. has a gas well in No. 1-5,149 on the S. B. Zumbro farm, Lots 3 and 4, in the Salt sand from 720 to 762 feet. Bowman and others No. 1 Roy Swab, Lot 33, is a light gas well. Bode and others have a duster in No. 35 Hiram McCroy farm, Lot 31, in the First Cow Run sand from 432 to 472 feet. In York Township, the Pure Oil Co. has a very light oil showing in No. 8 on the Wilbur Bysh, Section 28, in the lower Berea sand from 1,368-96 feet, total depth 1,400 feet. In Penn Township, the Penn-Ohio Gas Co. made a location on the William and Jennie Reed farm, Section 16. In Union Township, the Buck Run Oil & Gas Co. is drilling No. 2 George H. Putnam farm, Section 2, and the Malta Oil & Gas Co. No. 62 John W. Davis farm, Section 24, same township. Huffman and others are drilling No. 6 John Huffman farm, Section 28, Marion Township. Wallace and others are drilling No. 8 Margaret Pickerell, Section 32, Malta Township, same county.

INDIANA

The feature well of Indiana was a test drilled by William Bell and others on the Berkley Hill, Location 31, Clay Township, Pike County, which produced an initial of 100 bbls. from the Cunningham sand at a depth of 1,525 feet, and No. 2 is drilling on the same farm. Illpava Oil Co. is drilling on the Bessie Miller, same section. In Logan Township, H. C. Darby and others are drilling on the Noble Miller, Section 26, and the Wiser Oil Co. is starting No. 6 William Phillips farm, same county.

In Gibson County, Columbia Township, the Indiana Southwestern Gas & Utilities Corp. drilled a dry hole on the L. W. Gudgell farm, Section 25, at a total depth of 3,525 feet. This was formerly reported as drilling by the Texana Oil Co. Mann & Huber's test on the Tom Duncan farm, Section 13, Washington Township, is a light gas well at 1,467 feet.

Near Red Key, in Jay County, in the old Trenton Rock Field of northeastern Indiana, Dee Werner's well on the Oscar Current farm is reported at 15 bbls. initial.

In the Siosi Pool, southwestern Vigo County, Prairie Creek Township, the Siosi-Western Oil Corp. has a dry hole in No. 10 on the William Riggs No. 2 farm, Section 32, and on the William Riggs No. 1 farm No. 19 well is credited with an initial of 65 bbls. No. 20 on the Riggs No. 1 farm, same section, is drilling. In Sugar Creek Township, same county, the same company found a dry hole in a second test on the Anna E. Goodman farm, Section 23, at around 2,000 feet in depth.

In the southern part of Indiana, across the Ohio River from the Owensboro, Ky., Field, the Missouri-Kansas Pipe Line Co. reports a dry hole on the M. Spayd, Section 25, Clay Township, Spencer County. Packard Oil Co.'s No. 6 Lee Carlton farm, Section 19, Huff Township, is reported at 10 bbls.

In Perry County, the Ohio Oil Co.'s test on the Alfonso Dupoint farm, Section 7, Anderson Township, is reported dry, as is Roger E. Williams and others' second test on the John Backer farm, near the town of Troy, at 845 feet. Conyers, Roetzel and others are drilling on the Frank Cassidy, Section 25, Clark Township, and the Ohio Oil Co. is drilling on the William Epple, Section 8, same township.

In Warrick County, the Indiana Southwestern Gas & Utilities Co. is drilling on the Henry Schumaker farm, Section 21, Hart Township, and also drilling on the J. T. McWilliams farm, SE, Section 33, same township.

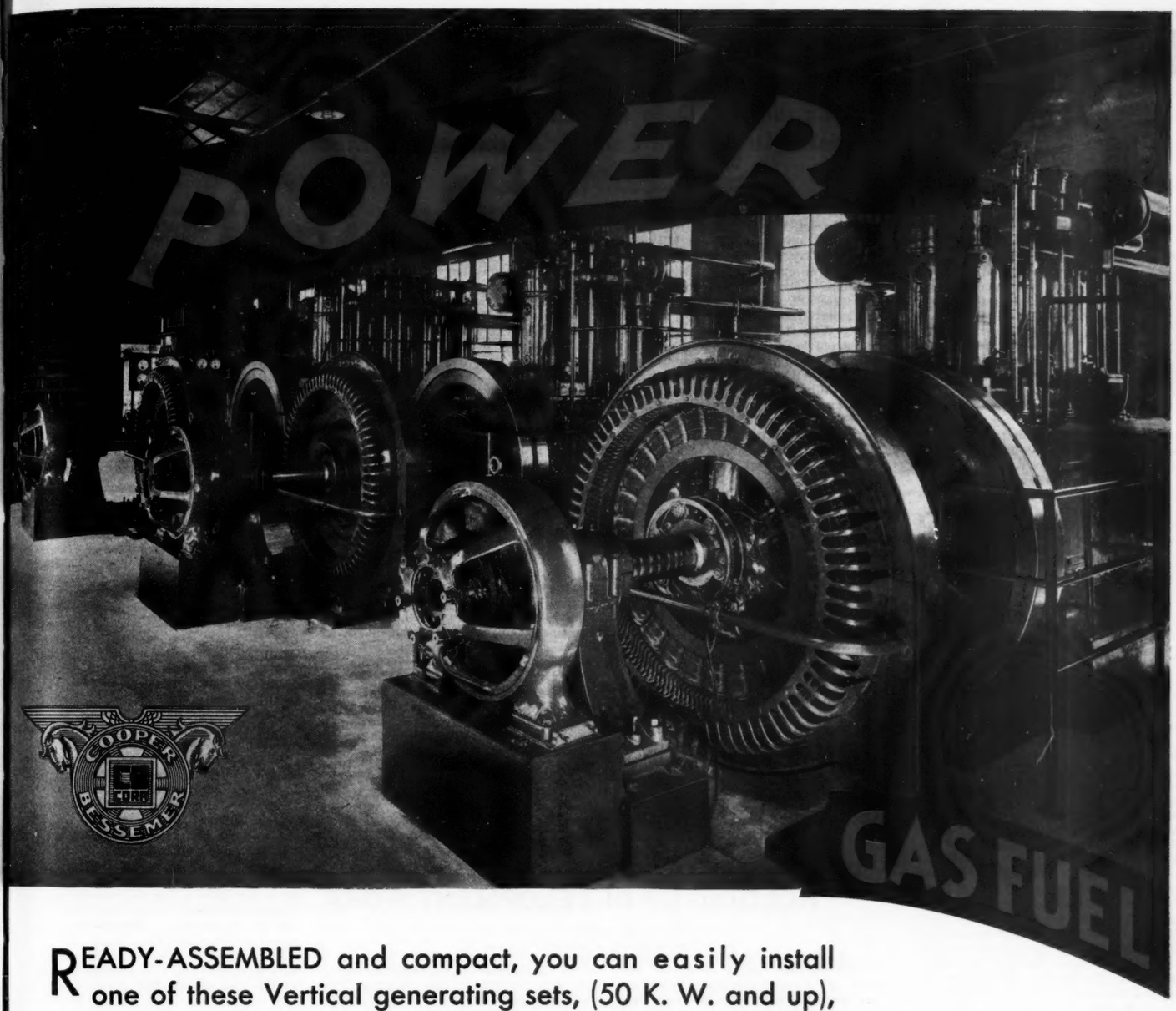
Petroleum Exploration Co. reported a dry hole east of Bartlettsville, in Lawrence County, at 1,700 feet.

Indiana Oil and Gas News

Compiled by Paul F. Simpson, state gas supervisor, Department of Conservation, Division of Geology, Indianapolis, Ind., by counties:

Gibson County—The Indiana Southwestern Gas & Utilities Corp. has been fishing for tools at 1,614 feet in No. 1 Perry Colvin, Section 6, Washington Township. The casing was being pulled from 3,525 feet in its test on the L. W. Gudgell lease in Section 25, Columbia Township, south of Oakland City. Same company's No. 2 S. McCullough, in Barton Township, was down 1,274 feet, and still drilling. Mann & Huber have completed No. 1 Thomas Duncan, in Section 13, Washington Township, at 1,467 feet, where it is making 90,000 feet.

(Continued on Page 181)



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Three Cooper-Bessemer vertical gas engines direct connected to electric generators in the Waskom, Texas, plant of the Dixie Gulf Gas Company. They furnish power for lighting and pumping water in the Waskom Compressor Station.

BESSEMER

Mount Vernon, Ohio, Grove City, Pennsylvania

Fewer Completions in Eastern Fields

Good Wells in Southeast Ohio Not Enough to Show Increase in New Production. Muskingum County Continues to Be Most Active

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., June 16.—Out of a number of completions during the past week very few were above the average. Light pumpers and gassers were very much in evidence in all sections and districts. In the absence of new territory operators are giving much attention to their old wells, shooting and cleaning them out and drilling some to the lower sands. The end of the first half of the year is approaching and not a new pool has been discovered in the eastern fields. Moreover, the close of the month will show fewer completions and less new production than the month of May. The few good producers completed in southeast Ohio were not enough to show an increase.

WEST VIRGINIA

On the waters of Trace Fork, DeKalb district, Gilmer County, West Virginia, C. V. Malloney completed a test in the Big Injun sand on the Craddock-Hardman farm. It is a 5-bbl. pumper.

In Mannington district, Marion County, the Clifton Oil & Gas Co. completed its test on the H. L. Campbell farm. It is a gasser in the Fifth sand. In the same district, Sutton Brothers have a gasser in the same formation on the H. Straight farm.

In Clay district, Monongalia County, the Pedlars Run Oil Co. is due in the sand on the Lewis R. Hess farm. In Clay district, the Moore Tex Oil Co. is drilling its old gasser on the Jesse R. Moore farm to the lower sands and the Philadelphia Oil Co. is drilling down from the Big Injun sand No. 3 on the W. S. Keek farm. In Church district, Wetzel County, the Manufacturers Light & Heat Co. is drilling down old No. 1 on the Kennedy heirs' farm.

Null & Moorhead are drilling on the Charles Snodgrass farm. Cochran & Cochran have started to drill on Harry Antel farm. In Proctor district, Wade, Carney & Co. are due in the Big Injun sand on the G. M. Lemasters farm.

On Bucks Run of Sandy Creek, Ravenwood district, Jackson County, the South Penn Oil Co. completed in the Berea grit No. 12 on the C. S. McCarty farm, showing for a 5-bbl. pumper. In Central district, Doddridge County, the Pittsburgh & West Virginia Co. completed and shot No. 4,288 on the Lewis Maxwell farm. It is a gasser.

Boone County

In Scott district, Boone County, the United Fuel Gas Co. has a gasser at its No. 4,067 in the Berea grit. In Carroll district, Lincoln County, A. F. Morris, trustee, has the mineral rights on the A. F. Morris farm and completed a gasser in the Berea grit. In Jefferson district, the United Fuel Gas Co. completed and shot No. 3,861 on the Horse Creek Land & Mining Co.'s tract. It is a gasser. In Sheridan district, the Empire State Gas Co. has a gasser on the B. L. Butcher farm.

In Church district, Wetzel County, the Manufacturers Light & Heat Co. has a light pumper at No. 3,422 on the Mary A. Teagarden farm. In Liberty district, Marshall County, the Manufacturers Light & Heat Co. has a gasser at No. 3,434 on the A. L. and R. Evans farm. In Church district, Wetzel County, the same company has drilled deeper No. 1,-167 on the Kennedy heirs' farm. It is a gasser in the Gordon sand.

Calhoun County

In Sherman district, Calhoun County, C. B. Lewis & Co. have rig completed on the L. J. Morris farm. In Burning Springs district, Wirt County, Fred Morehead has rig up on the J. W. Hickman farm. In Clay district, W. C. Patterson has rig up on the J. S. Slusher farm. In Walker district, Wood County, the Four State Oil Co. has rig up on the John Roberts farm. In Burning Springs district, Wirt County, Wagner & Co. have started to drill on the Luther Kemp farm. In Scott district, Boone County, the Riverhead Gas Co. is drilling on the Sylvester Wheeler heirs' farm.

In Logan district, Logan County, the West Virginia Gas Co. is drilling on the Henry Mitchell farm. In Duvall district, Lincoln County, the United Fuel Gas Co. is rigging up on the Nancy A. Vickers farm. The same company is due in the sand on the Hill-Ashby farm. In Jefferson district, the Mud River Gas Co. has made a location on the Elizabeth Adkins farm. In Center district, Gilmer County, the Steer Creek Oil & Gas Co. is rigging up on the A. H. Stump farm. In DeKalb district, James R. Tierny has started to drill on the F. G. Hardman farm. In the same district, F. G. Davis & Co. is rigging up on the F. G. Hardman farm. In Cass district, Monongalia County, J. B. Nuss & Co. have started to drill on the Alpheus Barrickman farm. In Battelles district, the Philadelphia Gas Co. is drilling on the B. G. Bissett farm.

Ritchie County

In Grant district, Ritchie County, David French and others have rig up on the B. F. Gilmore farm. In McKim district, Pleasants County, Sud Powell has rig up on the George Reed farm. In Tucker district, Wirt County, Hart & Co. have shut down at 1,923 feet on the Charles M. Wise farm. In Clay district, Ritchie County, the Reno Oil Co. is rigging up on the C. M. Cox farm. In the same district, the same company is building a rig on the M. H. Jones farm.

In Sheridan district, Calhoun County, W. W. Daley & Co. have rig up on the J. J. and S. M. Maze farm. In the same district, the Great Elk Oil Co. has a rig up on the Samuel Bachman farm. In Clay district, Ritchie County, the Reno Oil Co. has a rig up on the M. H. Jones farm. In Sheridan district, Calhoun County, the Chemical Oil Co. has a rig up on Clara B. Roberts farm. In Center district, Gilmer County, the Steer Creek Oil & Gas Co. has started to drill a second test on the A. N. Stump farm. In DeKalb district, F. G. Davis & Co. have started to drill on the Alva S. Hardman farm.

Braxton County

In Birch district, Braxton County, the Philadelphia Gas Co. has started to drill on the C. H. Bourne farm. In Sheridan district, Calhoun County, the Virginian Gasoline & Oil Co. is building a rig on the C. C. Morris farm and made a location on the Amanda Elliott farm. In the same district, the Mid-Penn Oil Co. has rig up on the Chess Polling farm. In Lee and Sherman districts, Godfrey L. Cabot has made seven locations. In Smithfield district, Roane County, the Union Gas Corp. has rig up on the N. T. Epling farm. In Reedy district, Wirt County, the Virginian Gasoline & Oil Co. has started to drill on the Phoebe Woodyard farm.

In Washington district, Jackson County, Lee Sheppard & Co. have shut down at 2,100 feet on the Wesley Streets farm. In Mannington district, Marion County, W. D. Echenbaugh has started to drill on the Henry D. Straight farm. In Union district, Lincoln County, the Woodyal Gas Co. has spudded in on the Charles Evans farm. In Jefferson district, the Conley Gas Co. has made a location on the W. M. Adkins farm. In Grant district, Cabell County, the Harshbarger Oil & Gas Co. has made a location on the J. A. and Oscar Conner farm. In Duval district, Lincoln County, the United Fuel Gas Co. has started to drill on the Henry Vickers farm.

Monongalia County

In Perry district, Monongalia County, the Chartiers Oil Co. has started to drill on the Spencer Kennedy farm. In Paw Paw district, Marion County, the Owens Bottle & Machine Co. is fishing at a second test on the Charles Toothman farm. In the same district, Victor Tennant has rig up on the Minnie S. Price farm. In Henry district, Clay County, the Virginian Gasoline & Oil Co. has rig up on the Brown, Swan, Goshorn & Geary tract. On Rush Run, Smithfield district, Roane County, the United Fuel Gas Co. has completed a second test on the John Hall farm. It is a very light pumper in the Big Injun sand. In Troy district, Gilmer County, the Philadelphia Oil Co. has rig up on the Frank Drain farm.

In Chapmanville district, Logan County, West Virginia, the Hope Natural Gas Co. has a light gasser at No. 7,487 on E. P. Stowers farm. In Jefferson district, Lincoln County, the United Fuel Gas Co. has a Berea grit gasser at 2,429 feet on the J. P. Lovejoy farm.

In Sheridan district the Empire State Gas Co. has a gasser on the B. L. Butcher farm. It is a Big lime producer. In Carroll district the Allegheny Gas Corp.'s test on the Julia A. Renolds farm is a gasser in the Big Injun sand.

In Ellsworth district, Tyler County, the Oakland Oil & Gas Co. has a duster in the Keener and Big Injun sands on the John Heintshan farm. In the same district, Warden & Co.'s test on the James Feist farm is also a duster in the same formations.

SOUTHEAST OHIO

In Section 7, Hanover Township, Licking County, the Pure Oil Co. completed and shot in the Clinton sand No. 4 on the H. C. Priest farm. It produced 89 bbls. the first 24 hours. In Fallsbury Township, Section 15, the Emerald Petroleum Co. completed in the same formation a test on the William Babcock farm. It produced 71 bbls. the first 24 hours.

In the SE of Section 10, Wheeling Township, Guernsey County, the Kemrow Co. completed in the Niagara lime formation a second test on the J. W. Fowler 40 acres. It produced 60 bbls. the first 24 hours. In the NW of Section 18, Sutton Township, Meigs County, the Preston Oil Co. completed in the Berea grit No. 9 on the C. and W. R. Easterday farm. It is a 5-bbl. pumper. In the same township, the Twenty-Five Association, Inc., has started to drill on the William Cunningham farm.

In the SE of Section 3, Clay Township, Muskingum County, Ohio, Bell, Scholl & Co. completed and shot in the Clinton sand a test on the E. N. Funderburg farm. It had an initial production of 23 bbls. In Washington Township the Atha Oil Co.'s test on the Bateman heirs' farm is a gasser in the Clinton sand. The same company's second test

(Continued on Page 110)

WATER SCARCITY IN KENTUCKY HOLDING UP DEVELOPMENT WORK

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., June 16.—A scarcity of water throughout the western portion of Kentucky held up development work to a large extent and for that reason fewer wells were reported than has been the case for several weeks. The daily production of crude oil is growing to some extent in the western Kentucky areas, regardless of the three months' shut down from December 15 to March 15. May shows the largest runs per month since the first of the year, the total runs made from wells served by the Illinois Pipe Line Co., in western Kentucky for the month being 307,-034.97 bbls. This does not include the oil handled by the Producers Pipe Line Co., which operates in the Tri-County Field of Ohio, Daviess and Hancock Counties, this company making no monthly report and some oil is handled by tank car shipments from other areas. The May runs of the Cumberland Pipe Line Co., from eastern Kentucky totaled 185,-523.95 bbls. The heaviest production in the western area comes from Ohio County where the shallow Stray sand has developed some wonderful wells, as there are numerous pools where this shallow production is found in Ohio County.

Just at this time McLean County is attracting much attention and indications are for a heavy development, there being around a dozen machines working. The first well of note in this county was drilled by Dimmick Brothers, former West Virginia operators, which was close to two years ago, but the big finds in the shale beds of Ohio County were more attractive and McLean County was overlooked until of late and it will now come in for its share of active development, as has been the case in the Niagara Field of Henderson County.

Ohio County

The Friendship Church Pool, near Dundee, in Ohio County, has one of the good producers of the county, since the last review, T. P. Royal and others' No. 15 on the T. P. Royal 60 acres, reported with an initial around 75 bbls. Keown and others have one reported at 75 bbls. on the Talley Leininger farm. K. N. Dole and others report the finding of a nice gas well on the Magan at Magan Station, between the Friendship Church Pool and the Sunnydale Pool. Louisville Gas & Electric Co.'s test on the Scott Huff lease, in the Haynesville area, and in the northwest corner of the lease, is reported at 15 bbls. initial.

James C. Ellis and others' No. 4 on the Mitchell, in the Bell's Run Field, northwest of the Ambrose-Weller Pool, is showing for 30 bbls. Same parties' No. 1 Mosley farm, about 5 miles southeast of Whitesville, is also rated at 30 bbls. initial production. D. J. White and others' No. 1 Samuel Fuqua farm, is reported a duster at a total depth of 710 feet. H. L. Ogle and others have what shows for a 30-bbl. producer on the J. J. Miller farm, in the Deanfield area, and the second test is reported under way on the same farm.

National Deposit Bank Co.'s No. 8 on the J. D. Colyer 100 acres, near Colyer Station, is reported at 8 bbls. at a depth of 560 feet. C. A. Dally and others' test on the W. P. Crow, in the Burford area, in the western portion of the county, is

(Continued on Page 110)

More Tests Likely in Crane County

Encouraged by Gas Showings to Go North. Andrews County Deep Tests Holding Attention. Proration Meeting for Penn Pool

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 16.—Interest in Cranfill Brothers and Gulf Production Co.'s No. 1 Tubb, in Section 8, Block B-27, western Crane County, is now slumping rapidly due to the test being down 3,420 feet with no present showings to retain encouragement, although the water found at 3,300 feet was bailed down and apparently came from behind the pipe. This test has had various gas showings, the last one at 2,900-30 feet with an estimated 8,000,000 feet of gas, which later decreased to 4,000,000 feet, stimulating interest to a great extent, and although this test may not prove a commercial producer, these gas showings, especially the last, should cause the drilling of other tests on the structure, possibly to the north. Many are of opinion production will be found north of this test, consequently other tests may be expected as soon as this is completed or abandoned.

Andrews County Tests

Deep Rock Oil Co. and others' tests in the vicinity of their Ogden producer, Andrews County, continues to hold the attention of producers and operators in the Permian Basin, although their No. 1 Miles begins to appear as a dry hole because of encountering 3,000 feet of sulphur water from 4,390-95 feet, and has 4,000 feet of water in the hole while drilling at 4,435 feet. This test is 990 feet from the north and 1,650 feet from the west of Section 22, Block A-46, P. S.L.

Their No. 1 A. R. King, in Section 11, Block A-46, south offset to the Ogden producer, is pulling 2½-inch tubing to rerun it with packer. When tubing was run on June 14, it made a 25-bbl. head in about a half hour's time, but did not show up so good after that performance. It had previously swabbed considerably over 400 bbls., and was estimated good for a 500-bbl. well, and may eventually after tubing is rerun. Total depth is 4,454 feet.

No. 1 Mathis, in Section 4, 1¾ miles east of No. 1 Ogden, is drilling below 4,500 feet with no water showing yet.

R. R. Penn and others' No. 1 Goodman, in the SE cor., Section 27, Block 44, T.&P. Survey, in the northern part of Ector County, surprised many today when it got a showing of oil in sand at 1,030 feet, and is drilling at 1,075 feet in red shale. This is something new for this area, and but little can be said about it at this time, the rainbow show probably not signifying a thing.

Penn Pool Proration

The Penn Pool, Ector County, has now reached its first 1,000,000-bbl. mark in production, with many wells continuing to be drilled, and new locations being staked each week, production having been extended 1 mile west by The Texas Company and Cosden Oil Co.'s No. 7 Connell, in Section 1, Block B-16, making a 320-bbl. well on initial production at a total depth of 3,680 feet. Present daily average of the pool is now slightly better than 16,600 bbls., and practically all of the wells are shot before completed and put on production. The best well completed in the pool this week was Humble Oil & Refining Co. and others' No. 9-D University, which made 984 bbls. after a 140-quart shot from 3,600-3,700 feet. It made only 561 bbls. before the shot, consequently it can be seen the tightness of the lime has to be thoroughly reckoned with in the pool. And shooting is the only possible method to bring the wells to fair sized producers. This tight lime has erased the pool as one of threatening power, and it is practically prorating itself, although a meeting of producers in the field will be held at Fort Worth at 10 o'clock, June 18, to discuss prorating the field, and changing the present method of well spacing.

As there are four pipe lines connected with the Penn Pool, Texas' new pipe line law, which goes into effect Friday, June 20, will probably not affect producers or purchasers in this area, for all wells are receiving connections, and the present outlet can easily handle the daily production.

Skelly Oil Co. and Republic Production Co.'s No. 1 McKenzie, in Section 28, Block 45, Township 2s, T.&P. Survey, Ector County, 1½ miles northwest of production in the Penn Pool, and a south offset to Texas Pacific Coal & Oil Co.'s No. 1 McKenzie which stands shut down at 3,870 feet as an apparent failure after swabbing only 45 bbls. after shooting with 210 quarts from 3,720-75 feet, is running 100 feet higher on top of the lime than the Texas Pacific test, and may prove a northwestern extension to this pool. Top of the gray lime was logged at 3,350 feet with a surface elevation of 2,932 feet. Another few days' drilling should give a definite idea as to the outcome of this test. Six and five-eighths-inch casing was run to 3,486 feet, and cemented at 3,500 feet, and will soon be ready to drill.

Taylor-Link Extension

Henshaw Oil Co. extended the Taylor-Link Pool, Pecos County, about a mile southwest this week when its No. 2 University in Section 24, Block 18, was completed for an initial production of 140 bbls. at a total depth of 1,060 feet. Top of the pay was logged at 1,032 feet with a surface elevation of 2,615 feet.

This pool has been lying dormant for several months, with but little drilling taking place after its hectic inception one year ago this month, the discovery of the Taylor-Link Oil Co.'s No. 1 University in Section 30, Block 16. It is now regarded as a "has been" with but slight attention paid to it. The pool is about 18 miles due west of the Yates Field.

Group No. 1's No. 2-B University in the Big Lake Field continues to increase in daily production, just as its predecessor, the first deep well of the pool, No.1-B University. It is now making over 1,700 bbls. per day with 32,500,000 feet of gas. Total depth is 8,489 feet, and top of the pay is 8,131 feet.

Scurry County

Byrd & Harmon's No. 1 Murphy in Section 114, Block 97, H.&T.C. Survey, Scurry County, encountered an increase in oil at 3,157 feet which filled the hole 1,000 feet in three hours. The first showing of oil was found at 1,700 feet with an increase from 1,722 to 1,832 feet, and another showing was found from 3,104 and 3,126 feet. There was 1,000 feet of fluid in the hole before the increase at 3,157 feet was struck.

The Atlantic Oil Producing Co. is running all of Mid-West's oil in Lea County to storage, and have contracted with the Amerada Petroleum Corp. for 3,000,000 bbls. It is also running Harry Walker's production. Total of these runs per day is around 1,500 bbls.

Sinclair Oil & Gas Co.'s No. 1 Dodge estate in Section 11, Block 30, Township 1s, T.&P. Survey, eastern Howard County, is now going on the pump after a 230-quart shot from 2,452-2,570 feet. It filled up 1,700 feet in 10 hours and promises a well of about 40 bbls. per day, extending production from the California's Foster lease in Mitchell County, about 2 miles to the west, into Howard County. Total depth of the well is 3,570 feet. This is Sinclair's first Permian Basin producer.

Irion and Taylor Counties

Irion and Taylor Counties have now taken their places on the West Texas production report, the former showing a daily average of 134 bbls. this week, and the latter a daily average of 95 bbls. The latter county got a boost in production by the completion of Mid-Continent's No. 1 Lindsey in the Guadalupe County School Lands south of the town of Tye. This well was completed for an initial production of 75 bbls. at a total depth of 2,414 feet, the fourth producer in this area. All four producers are to be shut in to 10 bbls. per day due to no purchaser of the oil. One small line connects the area with a loading rack on the T.&P. Railroad at Tye. No other pipe line company has entered to take the oil. Dunnigan Brothers constructed the short outlet to the loading rack.

WEST TEXAS PRODUCTION
Week Ending June 14

County—	No. wells	Bbls.
Andrews	1	96
Crane	345	33,294
Crockett	48	1,815
Ector	38	14,660
Fisher	7	1,107
Garza	5	49
Glasscock-Howard	510	33,880
Irion	3	134
Jones	73	1,317
Loving	23	1,667
Mitchell	146	2,142
Pecos	464	125,713
Reagan	257	17,681
Runnels	3	19
Scurry	5	14
Taylor	2	91
Upton	251	7,875
Ward	25	2,070
Winkler	596	70,345
Grand total this week	2,802	305,969
Grand total last week	2,791	309,626
Difference	11	3,657

COMPLETIONS IN WEST TEXAS

Week ending June 14

Crane County

Texas Pacific Coal & Oil Co.'s No. 3 University topped the pay at 2,945 feet, was shot with 240 quarts from 2,960-3,035 feet, came in for an initial production of 37 bbls. the first 17 hours, completed with a total depth of 3,078 feet.

Crockett County

Trans-Texas Oil Co.'s No. 2 Shannon, topped the pay at 2,534 feet, came in for an initial production of 35 bbls. and was completed with a total depth of 2,578 feet.

Ector County

Cosden Oil Co.'s No. 3-B University, had top of the pay at 3,525 feet, with increase at 3,565 feet; shot 120 quarts from 3,566-3,650 feet; came in for an initial production of 331 bbls.; total depth 3,654 feet. Humble Oil & Refining Co. and others' No. 8-D Kloh & Rumsey, topped pay 3,620 feet; shot 150 quarts from 3,640-82 feet; initial production 154 bbls; total depth 3,704 feet. Humble Oil & Refining Co. and others' No. 9-D University, topped pay 3,619 feet; shot with 140 quarts from 3,600-3,700 feet; initial production 984 bbls. after shot, and 561 bbls. before shot; total depth 3,700 feet. Humble Oil & Refining Co.'s No. 7 York, topped pay 3,655 feet; shot with 120 quarts from 3,645-3,710 feet; initial production 232 bbls. before shot and 309 bbls. after shot; total depth 3,710 feet. The Texas Company and others' No. 7 Connell topped pay 3,475 feet, with increase at 3,495 feet; shot 250 quarts from 3,475-3,600 feet; initial production 320 bbls.; total depth 3,680 feet. Gulf Production Co.'s No. 2-A University, top pay 3,630 feet, with increase at 3,670 feet; shot 140 quarts at 3,625-95 feet; initial production 605 bbls.

Howard County

Plymouth Oil Co.'s No. 5 Kloh and others, topped pay 2,412 feet; shot 180 quarts from 2,411-50 feet; initial production 432 bbls., swabbing; total depth 2,456 feet.

Pecos County

Atlantic Oil Producing Co.'s No. 1 W. T. Shearer, topped pay 1,438 feet; plugged back to 1,455 feet; initial production 20 bbls., pumping; total depth 1,488 feet. California Oil Co.'s No. 1 Jasper County Realty Co., first oil show at 1,545 feet, increases at 1,535-45 feet; initial production 3 bbls. with 3,000,000 feet of gas; total depth 1,620 feet.

Reeves County

The Exploration Co.'s No. 1 Kinney

(Continued on Page 116)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended June 16

Company, well, farm, name, section and block—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co. et al's No. 1 Mathis, 900 ft. from S and W, Sec. 4, Blk. A-46, Public School Land	Est. 1,500,000 ft. gas; drlg. 4,458 ft.
Deep Rock Oil Co.'s No. 1 Miles, 990 ft. S, 1,650 ft. E of NW cor., Sec. 22, Blk. A-46, School Land	Drlg. 4,410 ft.
Fuhrman Pet. Corp.'s No. 1 Ford, 440 ft. from S and 2,200 ft. from W of Sec. 16, Blk. A-43, Public School Land	Drlg. up iron; total depth 2,960 ft.
Deep Rock Oil Co. et al's No. 1 King, 330 ft. from N and 2,310 ft. from E, Sec. 11, Blk. A-46	Top pay 4,335 ft.; swabber 476 bbls.; total depth 4,454 ft.; ran 4,387 ft. 2½-in. tubing with packer.
Maer & Staniforth's No. 1 Meador, C SW Sec. 8, Blk. A-41	Location.
R. R. Penn's No. 1 Wilson, C, Sec. 20, Blk. A-37, School Blk.	Drlg. 1,634 ft.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 Fee, 2,640 ft. S and 2,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,250 ft.; hole full water 1,135-85 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F.R.R. Sur.	Show oil 1,830 ft.; shut down 2,345 ft.
Van McPhail's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,750 ft.
COKE COUNTY	
Arkansas Fuel Oil Co.'s No. 1 Stepp, 1,020 ft. NE, 2,340 ft. W of SE cor., Sec. 35, Blk. 1-A, H.&T.C. Sur.	Drlg. 2,925 ft.

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Panhandle Output Down 5,000 Bbls.

New Play in Gray County Busiest at Moment. Wichita Falls Activity Continues Unabated. Graham Pool Disappointment

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 16. — A decrease of over 5,000 bbls. in daily production in the Panhandle district this week should be encouraging to the operators in that area since the Humble Oil & Refining Co. announced last week it would discontinue crude purchases in that area where it has been taking around 13,000 bbls. per day, and larger decreases in daily production will probably be sought by producers in this district since other pipe line companies will not be able to handle the crude which Humble is cutting.

The Prairie Oil & Gas Co., and The Texas Company, the other two main purchasers in this district, are running to capacity, and have been for many months. The Gulf Production Co. and Magnolia Petroleum Corp. have their lines carrying their own oil, and the Phillips Petroleum Corp. has its hands full caring for its production.

Regardless of the Humble pulling out of the Panhandle as a purchaser, many locations were made in the district this week, and drilling is going ahead as usual. The new play in Gray County, outside of the city of Pampa, on the southwest, is probably the "hottest" at the present time in this area. Cockrell-McIlroy Oil Co. opened this new play when it brought in its No. 1 Castleberry a few weeks ago.

The Texas Interstate Pipe Line Co., subsidiary of the Missouri-Kansas Pipe Line Co., which is building a 24-inch, 1,250-mile line from the Panhandle to Indiana and Illinois, has begun drilling operations on its acreage in Moore County, and expects to have many gassers completed ready to supply the line when completed in December.

Wichita Falls District

Operators in Archer, Wichita and Wilbarger Counties in the Wichita Falls district are manifesting pessimism since Humble's announcement discontinuing purchasing oil in these counties after July 1, but as the company has only been taking around 5,000 bbls. per day from this district it is believed other pipe line companies serving offset leases may devise some method of giving aid to the leases which will be cut off. Many locations were staked in Archer County this week, and it looks as if activities would continue unabated for a while at least, although the decrease in pipe line outlet is bound to be felt unless a remedy is devised immediately.

A possible extension of the Consolidated Pool, near Vernon, showed up as a possible failure this week when it failed to pick up the 1,200-foot pay horizon which produces in this pool. This test belongs to W. B. Hamilton, and is located in Section 4, H.&G.N. Survey, northwest of production.

Young County Shallow Pool

The 8 miles intervening between the towns of Olney and New Castle in Young County, have been exceedingly active in drilling during the past few weeks, and many new producers have been completed in the various pools dotting the acreage between these towns. These tests are drilled with spudders, due to the shallow depths, and completions every week are taxing the pipe lines serving the area to the limit. Many wells have been shut down in top of pay until pipe line outlet can be assured.

One of the best, if not the best well of this shallow area, was completed by E. R. Riggs this week on his Larimore lease in Section 2,247, T.E.&L. Survey. This well, No. 7 Larimore, came in for an initial production of around 1,350 bbls. from the 690-foot pay.

These wells are cheaply drilled, take but little more than a week's time for drilling, and produce high gravity sweet oil, consequently this production is much sought, and leases in this area are considered extremely valuable. Many locations are made in the county every week, the majority in this area.

Graham Pool

The Graham Pool's deep production around the Nash and Windfohr discovery which is producing from the 3,700-foot pay horizon, seems ill fated, with the offsets offering but slight hopes for production, and no hope of duplicating the 1,000-bbl. per hour initial record of the discovery well. Pitzer and West are still trying to make a producer out of No. 1 Callahan, northwest of the Nash and Windfohr well. Total depth of this test is 3,925 feet, and the owners are plugging back to shoot the sand around 3,800 feet, where it had a small oil show.

Panhandle Refining Co.'s No. 1 Morrison, southeast of the Nash & Windfohr well, missed the expected pay horizon and is drilling below 4,000 feet. T. B. Slick's No. 1 Graham, northwest of the deep discovery, is to be shot in the saturated lime from 3,750 to 3,815 feet in an effort to make a producer.

Callahan County

Mid-Tex Oil Co.'s No. 1 T. Windham, in the G. W. Denton Survey No. 370 in the vicinity of the Empire Gas & Fuel Co.'s previous test which had a good showing of oil, Callahan County, topped the Ellenberger lime at 4,230 feet and showed a little gas. It also had an oil showing from 4,349-51 feet and put about 300 feet of 42 gravity oil in the hole. It is shut down at this depth, and is attracting considerable attention to this area which now looms as a possible Ellenberger Pool.

The Overall Pool, Coleman County, produced an average of 561 bbls. from 18 wells during the past week.

PANHANDLE COMPLETIONS
Week Ending June 14

Carson County

Empire Gas & Fuel Co.'s No. 3 Fuqua was completed with 18,000,000 feet of gas from 2,450 feet, total depth 2,795 feet.

Castro County

Colorado Oil & Refining Co.'s No. 1 Slemmons abandoned location. Mystery Oil Co.'s No. 1 J. L. Crum, temporarily abandoned.

Gray County

Clayton-Key Oil Co.'s No. 2 Key, show of oil 2,705 feet, topped pay 2,725 feet, initial production 100 bbls.; total depth 2,735 feet. Continental Oil Co.'s No. 6 Finley-Brown, topped pay 2,934 ft; initial production 270 bbls.; total depth 2,966 feet. Empire Gas & Fuel Co.'s No. 1 Jackson, topped pay 3,160 feet, 3,180 feet and 3,205 feet; shot 40 quarts from 3,184-3,234 feet; initial production 220 bbls.; total depth 3,256 feet. Magnolia Petroleum Co.'s No. 9 Wright topped pay 2,860 feet; initial production 680 bbls. with 5,000,000 feet of gas; total depth 2,870 feet. Phillips Petroleum Co.'s No. 4 Wright (Wood), topped pay 2,690 feet; initial production 2,820 bbls. with 10,000,000 feet of gas. Southern Petroleum Exploration Co.'s No. 1 Vaughn, top pay 3,160 feet; shot 100 quarts from 3,155-92 feet; initial production 325 bbls.; total depth 3,211 feet. The Texas Company's No. 7 Combs & Worley, show of oil 2,760 feet and 2,815 feet; topped pay 2,865 feet; initial production 600 bbls.; total depth 2,910 feet. The Texas Company's No. 3 Wright topped pay 2,775 feet and 2,840 feet; initial production 450 bbls. with 3,000,000 feet of gas; total depth 2,859 feet. Wilcox-Pampa Oil Co.'s No. 11 Combs & Worley topped pay 2,798 feet; initial production 100 bbls.; total depth 2,870 feet.

Hutchinson County

Alamoso Oil Co.'s No. 4 Sanford topped pay at 3,010 feet; total depth 3,095 feet; plugged back to 3,064 feet; initial production 8 bbls. of oil and 2 bbls. of water, with 1,000,000 feet of gas. Continental Oil Co.'s No. 1-E Johnson Brothers topped pay 3,096 feet; total depth 3,610 feet; plugged back to 3,140 feet; shot with 60 quarts from 3,096-3,140 feet; initial production 6,000,000 feet of gas. Texarodo Oil Co.'s No. 1 Sanford, total depth 3,109 feet; shot with 15 quarts from 3,058-68 feet; initial production 40 bbls. of oil and 20 bbls. of water.

Potter County

Canadian River Gas Co.'s No. 1-N Masterson, top pay 2,210 feet; initial production 20,000,000 feet of gas; total depth 2,720 feet.

Wheeler County

Lone Star Gas Co.'s No. 1 Finley topped pay 1,780 feet; initial production of 20,000,000 feet of gas; total depth 1,946 feet. Piney Oil & Gas Co.'s No. 3 Bentley, show of oil at 2,138 feet and 2,324 feet, had 9,000,000 feet of gas from 2,228-2,340 feet; initial production 100 bbls.; total depth 2,340 feet. Upham Gas Co.'s No. 1 Hasho, total depth 1,851 feet; initial production of 37,000,000 feet of gas from 1,684 feet.

NORTH TEXAS PRODUCTION
Week ending June 14

Panhandle District—	Prod.
Carson County	8,487
Hutchinson County	22,657
Gray County	73,560
Moore County	380
Potter County	11
Wheeler County	690
Total this week	105,785
Total last week	110,898
Decrease	5,113
Wichita Falls District—	
Archer County	19,055
Baylor County	1,300
Clay County	696
Cooke County	3,662
Foard County	199
Jack County	3,735
Haskell County	46
Montague County	6,400
Throckmorton County	1,165
Wilbarger County	23,150
Young County	20,075
Wichita County	24,775
Total this week	104,258
Total last week	104,396
Decrease	138
Ranger District—	
Brown County	6,676
Callahan County	3,865
Coleman County	4,325
Comanche County	360
Palo Pinto County	620
Eastland County	5,432
Shackelford County	6,450
Stephens County	5,980
Total this week	33,718
Total last week	33,951
Decrease	233
Grand total this week	243,761
Grand total last week	349,245
Decrease	5,484

RANGER DISTRICT COMPLETIONS
Week Ending June 14

Brown County

Paramount Oil Refining Corp. and others' No. 2 Shore, dry and abandoned, total depth 1,325 feet. Bishop and others' No. 1 Baysen, dry and abandoned, total depth 413 feet. Sillers and others' No. 1 Brooks Smith, top pay 1,600 feet; shot 220 quarts from 1,615 to 1,750 feet; initial production 1,000,000 feet of gas with little oil; total depth 1,754 feet.

Callahan County

Goodrum and others' No. 1 Williams, dry and abandoned, total depth 983 feet. Humble Oil & Refining Co.'s No. 1-B Kennard, top pay 1,350 feet; initial production 4,000,000 feet of gas; total depth 1,353 feet. McCown & Richardson's No. 1 Baum, dry and abandoned, total depth 727 feet.

Coleman County

Gibson, Payne & Clark's No. 1 Freeman, dry and abandoned, total depth 1,868 feet. Paul Davis' No. 1 Overall, dry and abandoned, total depth 1,510 feet. Dozier and others' No. 1 Mathews, top pay 1,874 feet; plugged back to 1,872 feet and shot with 10 quarts from 1,847-68 feet; initial production 1,572,000 feet of gas; total depth 1,916 feet.

Comanche County

Tex-Wa Oil Co. and others' No. 1 Fisher, dry and abandoned, total depth 3,048 feet.

Eastland County

Chestnut & Smith Corp.'s No. 1 Jones, top of pay 3,405 feet; plugged back to 3,438 feet and shot with 100 quarts from 3,405-38 feet; initial production 75 bbls. and 1,250,000 feet of gas; total depth 3,610 feet. Lone Star Gas Co.'s No. 1 fee, top pay 3,475 feet; plugged back to 3,505 feet and shot with 100 quarts from 3,475-3,505 feet in sand; initial production 75 bbls.; total depth 3,809 feet.

(Continued on Page 116)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending June 16

CARSON COUNTY

Company, well, farm, name, section and block— Remarks—

Andrew et al's No. 1 Hill, 330 ft. S, 285 ft. E, N½ SE. Sec. 9, Blk. 3, B.&B. Sur. ..... Location.

Danciger O. & R. Co.'s No. 1 Block, 330 ft. N and E lines, Sec. 112, Blk. 4, I.&G.N. Sur. ..... S.D. 2,985 ft.

Danciger O. & R. Co.'s No. 1 Byrum, 990 ft. N, 330 ft. W, SW, Sec. 188, Blk. 3, H.&G.N. Sur. ..... S.D. 3,104 ft.

Cockrell-McIlroy Oil Co.'s No. 1 Eller, 330 ft. S and W, NE cor. NW, Sec. 200, Blk. 3, I.&G.N. Sur. ..... T.D. 3,615 ft.; P.B. for gas.

Cockrell-McIlroy Oil Co.'s No. 1 Simms, 330 ft. S and E, E 140 ac., N 160 ac., S 320 ac., Sec. 11, Blk. 7, I.&G.N. Sur. ..... 43,000,000 ft. gas 3,110-35 ft; drlg. 3,370 ft; 1,200 ft. oil in hole; T. P. 3,275 ft.

Empire G. & F. Co.'s No. 1 Archer-B, 330 ft. N and E, SW cor. SW, Sec. 139, Blk. 3, I.&G.N.R.R. Sur. ..... Location.

Empire G. & F. Co.'s No. 2 Fields, 990 ft. N and W, Sec. 13, Blk. 4, I.&G.N. Sur. ..... Drlg. 2,850 ft.

Gibson Oil Corp.'s No. 1 Moore, 990 ft. N, 330 ft. E, N½, SE, Sec. 20, Blk. 7, I.&G.N. Sur. ..... S.D. 547 ft.

Phillips Pet. Co.'s No. 1 Pickens, 990 ft. E line, 330 ft. N line, NE cor., Sec. 31, Blk. 7, I.&G.N.R.R. Sur. ..... Drlg. 3,500 ft.

Reiger & Steckoll's No. 1 Martin, 330 ft. N and W, SW, Sec. 90, Blk. 7, I.&G.N. Sur. ..... Drlg. 375 ft.

Shamrock O. & G. Co.'s No. 1 Thompson, 330 ft. S and W lines, E 80 ac., NE, Sec. 5, Blk. 7, I.&G.N. Sur. ..... 17,000,000 ft. gas 2,755 ft; fishing 3,175 ft.

Shell Pet. Corp.'s No. 1 Percival, 330 ft. N and E, SE, Sec. 199, Blk. 3, I.&G.N. Sur. ..... Fishing 3,080 ft.

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Basic Principles of Orifice Meters

Never Change Although Understanding of Them May Vary From Time to Time. Many Variable Factors Enter Into Investigation

By L. K. Spink*

The fundamental principles of orifice meters never change, although our understanding of them may vary from time to time. If I can interpret them as accurately as did those careful and thorough investigators who first conceived the idea of the use of the orifice meter for the commercial measurement of gas, I shall be more than satisfied. We mention with a great deal of respect the names of T. R. Weymouth and H. C. Cooper, whose original work on this subject was so accurate that there has been no material change in the practice outlined by them since the original application of the idea in 1910.

The orifice meter is composed of two essential elements: The primary device which produces the differential, composed of the orifice plate, flange and pressure connections, and the secondary device which measures the differential produced, composed of the differential gauge. The primary device has remained practically unchanged since the original conception of the idea of measurement by means of an orifice. The secondary device has undergone many changes in design and has now reached a state closely approaching perfection. It is unlikely any great changes will ever be made in the primary device. However, our understanding of the reactions of the primary device to various conditions has broadened so greatly within the past few years that it is likely there will develop new refinements in the methods of applying the readings obtained from it which will greatly broaden its field of usefulness.

Many Variable Factors

The fundamental principles of orifice meters are the same whether applied to gas, liquid or any other medium. Gas measurement resolves itself into the most complicated problem because of the number of variable factors involved. A change in static pressure of the flowing gas affects its density and thus affects the differential produced at a given velocity. To add further to the difficulties involved, the unit of measurement is elastic. In order to tie the cubic foot down to a specific quantity it is necessary to specify the pressure and temperature at which it is stored or considered to be measured. This necessitates the use of two additional factors in our gas flow equation.

The hydraulic equation is universally used in the commercial measurement of gas. It involves several assumptions which are not strictly correct, but the early leaders of the gas industry no doubt saw it was better to be satisfied with a compromise in this respect than to involve chart computation by the use of equations containing fractional powers and thus turn chart computing into a tedious and practically endless task. Furthermore, by the use of an experimentally determined value of E it was possible to compensate for the little inaccuracies in the hydraulic equation so long as conditions of measurement were maintained similar to those under which the original E value determinations were made.

Boyle's Law

Equations are a necessary, if unpleasant, incidental to theory. In order to understand the developments of the measurement industry of the present time, it is absolutely necessary that we be familiar with the basic equations and the assumptions that they involve. There is no difference between theory and actuality provided we dig deeply into the theory. We hear a lot today about deviations from Boyle's law in its effect upon orifice measurement. This is nothing new; Boyle's law applies only to perfect gases which are not encountered in practice. Boyle's law was assumed to be correct in the derivation of our gas flow equation because it was nearly enough so that it would cover ordinary conditions of measurement with a high degree of accuracy. It is expressed as follows: "The pressure which a given quantity of gas at constant temperature exerts against the walls of the containing vessel is inversely proportional to the volume occupied." In actual practice, we find that the volume of a gas usually changes more rapidly than the pressure applied to it, particularly in the case of a gas near the point of liquefaction. Hence, the necessity of a correction for supercompressibility at extremely high operating pressures.

In deriving the hydraulic formula, we assume that the density of the gas, which is dependent upon its state of compression, is the same at the upstream pressure tap as at the downstream. This is correct within a fraction of a per cent provided the upstream pressure is 100 pounds and the downstream pressure 99 pounds, but is very much in error if the upstream pressure is 100 pounds and the downstream pressure 50 pounds. Our standard flow equation would be very much in error if applied to the latter case. For any given gas, the ratio of upstream to downstream density may be expressed as a quantity dependent upon the numerical value of the ratio of differential to static pressure; that is, a function of h/p. As long as this value is kept within the limits prescribed by the manufacturers of commercial meters, we can safely neglect its effect.

Derivation of Formula

The foregoing should be proof enough of the value of understanding the derivation of the formula. No doubt everyone who has used the flow equation has wondered what is the source of the constant 218.44, why it is constant, and whether knowing its derivation would not help him to understand his orifice meter problems. No doubt if it were realized that the mathematics involved nothing more complicated than arithmetic and elementary algebra and that it had a practical value, there are few who could not and would not have gone to the bottom of it. We will go into the mathematics of the flow equation just deeply enough to show the physical laws which enter into its derivation.

Physical Laws

Consider a gas flowing in the line and striking an orifice plate which impedes its flow. In order to pass through the constriction its velocity must increase. This increase in velocity is called acceleration and from the laws of acceleration we get the equation s is equal to the $\sqrt{2gh_v}$. This is the fundamental equation from which all commercial flow equations are derived. A study of it and the changes that it goes through in being converted into the commercial form explains all of the latest developments in the science of orifice measurement. It is sometimes called the equation of falling bodies. This is a somewhat inadequate and misleading definition equivalent to defining an animal as a cow. Among its other uses, it happens to describe the action of falling bodies because falling bodies are accelerating bodies. You will note that it describes an instantaneous condition. In the equation s represents speed of velocity in feet per second; therefore, the orifice meter is essentially a rate-recording device. In order to obtain a total flow over a period from its records it is necessary to sum up a number of instantaneous readings of rates.

We find that, on widely varying orifice meter chart records, the square root of products of average pressures and average differentials multiplied by the coefficients does not give us the same flow as obtained by deriving instantaneous values of velocity by taking instantaneous values of differentials and pressures obtaining the square root and multiplying it by an instantaneous coefficient and averaging this value for the same period. Therefore, we know that the first mentioned method is incorrect. The reason for this is that the flow is not directly proportional to the differential and static pressures. The true relation may be seen by inspecting a square root chart and a differential chart and comparing the two. It will be seen that the average of zero and 10 on the square root chart will be found at about 25 per cent of the linear chart scale, whereas the average of zero to 100 on the differential scale will come at 50 per cent of the linear chart scale.

The acceleration in feet per second is g, given to a body of one unit mass by the same unit of farce acting upon it; h_v is the height of a homogeneous column of the flowing fluid producing s. Obviously it would be impractical to measure H in units of this sort. A convenient unit of measurement has been chosen; that is, inches of water at 60° F. At this temperature the weight of a cubic foot of water is 62.37 pounds. Has it ever occurred to you to wonder at what temperature the water in the water column should be kept when calibrating a differential gauge? Have you realized that if the water in your water column is maintained at 100° F. your water column readings will be more than one-half inch high at 100 inches?

Calibrating Fluid

Take the case of the field man who reported that his new meter did not calibrate correctly. Upon request of the factory representative assigned to the job, he brought out the water manometer he had used for checking purposes. It was filled with a reddish looking fluid. On inquiry it was found that he had filled the manometer with a strong solution of chart ink to improve its readability. The engineer then explained that chart ink is composed of glycerine, gum arabic, and whatnot and its density is not supposed to be the same as that of water. The heart of the whole trouble was that the calibrating fluid did not have a density of 62.37 pounds per cubic foot. The density of the flowing fluid is $H_v = 62.37 \times \frac{H}{128}$.

In this equation, $\frac{62.37}{\delta}$ represents the ratio of the height of a homogeneous column of the flowing fluid to the equivalent height of a column of water. The factor 12 reduces from inches to feet. Now Qf equals 3,600 sa. We multiply by 3,600 because s is expressed in feet per second and Qf is cubic feet per hour, 3,600 being the number of seconds in an hour. We multiply by the area of the

(Continued on Page 117)

*Before Gas Measurement Course, Norman, Okla.

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Standing, left to right—K. R. Boyes, secretary; Alexander Forward, managing director; B. V. Pfeiffer, J. M. Bennett, R. W. Gallagher, George E. Whitwell, J. L. Conover, F. G. Curfman, Charles R. Prichard and C. C. Krause.

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Pipe Line Construction News

PIPE ORDER FOR PHILLIPS LINE HAS BEEN ORDERED

By B. E. V. Luty

PITTSBURGH, Pa., June 16.—The Phillips Petroleum Co. has ordered a total of 700 miles of line pipe for gasoline, at least half the mileage being in 10-inch, the business going to the two Youngstown producers. An astonishing amount of line pipe has been ordered in the past three months and more business is in sight if the producers can arrange deliveries.

The line pipe business is the talk of the steel trade, as it is remarkably active while everything else in steel is relatively dull. In standard or merchant pipe, which involves buttweld almost exclusively, demand has been poor right along and in the last two or three weeks has perhaps decreased a trifle, certainly not showing progressively seasonal improvement.

Last year's production of standard pipe was 1,223,639 gross tons black and 485,390 gross tons galvanized, showing a slight gain over 1928 but a measurable loss from 1927 and a greater loss from 1926, which remains as the record year. Production of oil country goods is given at 1,093,277 gross tons, the smallest since 1925, but the figures are not illuminating as they include line pipe technically but exclude the product of the A. O. Smith Corp. With that production added the total would undoubtedly be far above any previous record.

Steel demand is growing poorer and production is suffering. Steel ingot production in April was 80 per cent of capacity and 74½ per cent in May while the rate last week was no doubt somewhat under 70 per cent.

There is no progressive recovery in the automobile industry. Production month by month so far this year has followed almost precisely the monthly variation shown by averaging the five years prior to last year, which was an erratic year. The individual months showed an average gain of 4 per cent from the five-year average. Production being so largely of the two light cars the consumption of steel was not in keeping.

The Steel Corporation reported unfilled obligations May 31 of 4,059,227 tons, representing 294,993 tons decrease during May, against 216,433 tons decrease during April and increases during each of the seven months preceding. Losses in April and May are the usual thing and thus the report furnishes no fresh unfavorable news.

Finished steel prices have been subject to much shading in the past few weeks in the majority of lines and are now reported to be somewhat steadier, but merely at previous minimums. The lessened shading may be due in part to there being fewer large inquiries, such as would bring out the greatest cuts. Standard pipe is quite steady and large size pipe is much stronger than two or three months ago, producers being so well filled.

ARIZONA GAS PROJECT

It is reported that the Western National Gas Co. has surveyed for a 750-mile line from the Jal Pool of Lea County, in New Mexico to El Paso, Tex., and thence westward to Bisbee, Douglas and Phoenix in Arizona. The line would parallel the Paso-Tex Pipe Line Co. from Jal to El Paso. The Paso-Tex is a crude oil line, however, taking oil to the Paso-Tex Refining Co.'s refinery at El Paso. Smelters, mines, shops and domestic consumers would be served in Arizona, and the cost is estimated at around $14,000,000.

TEXAS-CHICAGO UNITS HAVE BEEN ORGANIZED

NEW YORK, June 16.—Continental Construction Co. has been organized as the building unit for the $100,000,000 natural gas pipe line from the Texas Panhandle to the Chicago area. The line will be of the high-pressure type and is a joint project of the Cities Service Co., the Insull interests, the Standard Oil Co. of New Jersey, Skelly Oil Co., Phillips Petroleum Co., Columbian Carbon Co. and The Texas Company.

Another new corporation, the Natural Gas Co. of America, has been formed to finance and operate the line with funds being provided by the constituent companies. No present public offering of securities is planned by the sponsors of the line.

Under the direction of Henry L. Doherty & Co., construction offices have been opened in Kansas City and contracts are being let for 1,000 miles of 24-inch high-pressure pipe. An additional 1,000 miles of pipe of smaller sizes will be used in auxiliary and lateral lines. In all, more than 210,000 tons of 24-inch pipe will be used in the line, with an additional 100,000 tons of pipe in sizes ranging from 8 to 16 inches to be used for auxiliary connections.

Immediate construction will be started on a number of gas compressor stations totaling 70,000 horsepower, which will be raised later to 100,000 horsepower after the line goes into operation. Deliveries of pipe, gate valves and other equipment has already started.

The People's Gas Light & Coke Co. will distribute the natural gas from the line in the city of Chicago. The line will have an initial daily delivery capacity of approximately 300,000,000 feet of gas, and will supply more than 50 cities and towns in Kansas, Nebraska, Iowa, Illinois, Indiana Michigan and Wisconsin.

PROPOSED GAS LINES IN SOUTHWEST LOUISIANA

HOUSTON, Tex., June 16.—Proposals to the United Gas Co. of Houston to lay a gas line into southwestern Louisiana have been made by the Southwest Louisiana Gas Co. following a conference at Opelousas, St. Landry Parish, last week. The United Gas Co. has been given 90 days to draw up plans.

The proposed line to southern Louisiana would be laid from a point near Kirbyville, southeastern Texas, on the trunk line of the Dixie Gulf Gas Co.'s trunk line from northeast Texas to Port Arthur.

Forty-two cities and towns of southern Louisiana, including Lake Charles, Opelousas, Jennings, Welsh, Lafayette, Sulphur, Elizabeth, Vinton, St. Martinville and others, have given assurance that they will use natural gas to be piped in through the proposed line. The project will require the laying of a line approximately 150 miles long.

PROGRESS ON HOBBS LINE

FORT WORTH, Tex., June 16.—Atlantic Pipe Line Co. has approximately 15 miles of 8-inch laid on the Midland end of its Midland-Hobbs line, and 10 miles laid on the Hobbs end of the line.

The Shell Pipe Line Co. has started construction of its 8-inch line from a connecting point on The Texas Company's line at Jal to Hobbs, and The Texas Company has announced that it will not lay a line into the Hobbs area at this time. The Paso-Tex Pipe Line Co. is laying an 8-inch line from Winkler County to the Hobbs area, and will transport Lea County crude to its refinery at El Paso by way of this new line.

WORK WELL UNDER WAY ON MO.-KANS. PIPE LINE

CHICAGO, June 16.—Work on the Missouri-Kansas Pipe Line Co.'s new system, from the Panhandle of Texas to eastern Indiana and connecting with the company's western Kentucky fields, has now been under way for three weeks. Ten crews, engaged in construction from a point near Newton, Kans. to the eastern terminal of the line in Indiana, are employed by Williams Brothers, Inc., of Tulsa. The distance they cover will be approximately 525 miles.

Three crews are engaged in construction from the Texas Panhandle to a point near Liberal, Kans., and another to a point near Newton, Kans., approximately 310 miles. These crews are controlled by the Oklahoma Contracting Co., of Dallas, Tex. One crew employed by the Connor Construction Co. of Kansas City, Mo., is constructing a 104-mile line from Louisburg, Kans. to Booneville, Mo. Brokaw, Dixon, Garner & McKee, engineers, have been retained by the company.

The pipe line will pass through 46 counties in seven states, including the following:

Kansas—Meade, Clarke, Ford, Kiowa, Pratt, Reno, Harvey, Butler, Greenwood, Lyon, Coffey, Anderson, Franklin and Miami.

Missouri—Cass, Johnson, Pettis, Cooper, Howard, Boone, Audrain, Ralls and Pile.

Illinois—Pike, Scott, Morgan, Sangamon, Moultrie, Douglas and Edgar.

Indiana—Park, Hendricks, Marion, Vigo, Clay, Sullivan, Knox, Gibson and Vanderburg.

Kentucky—Henderson and Webster.

UNIVERSITY OF TEXAS CONSIDERING PIPE LINE

Members of the lease board of the University of Texas, Dr. H. Y. Benedict, president of the university, and others, are considering plans for constructing a natural gas pipe line from the Big Lake Field, Reagan County, Texas, to Austin, a distance of 300 miles, such a line to carry gas from this field to the state institutions.

Such a line was estimated to cost approximately $3,000,000. R. L. Holliday, of El Paso, member of the university lease board, estimated that 90,000,000 feet of gas daily was being produced by wells on university lands in the field, and that this amount was going to waste, while the state institutions at Austin spend around $100,000 annually for fuel.

WORK STARTED ON QUINTON LINE

KINTA, Okla., June 14.—Work has been started near here by the Oklahoma Natural Gas Corp. on its 63-mile, 16-inch gas pipe line extending from the Quinton Field to Muskogee and Bald Hill, Okmulgee County. The line will take gas from the properties of the Mid-Western Oil & Gas Co. The Ozark Pipe Line Co., a subsidiary of the Oklahoma Natural Gas Corp., is constructing the line.

GULF LINE TO DARST CREEK

SAN ANTONIO, Tex., June 16.—Gulf Pipe Line Co. is surveying a line from the Darst Creek Field in Guadalupe County to a connection with the company's main trunk line near Sour Lake and running to Port Arthur. This is the first line the Gulf has built in Southwest Texas. The company has production in both the Darst Creek and the Joe Bruner Fields. The company has a short line from the Bruner Field to a loading rack on the Southern Pacific at the south end of the field.

SOUTHERN NATURAL GAS EXTENDING ITS SYSTEM

Contracts have been awarded for the construction of additions to the transmission lines of the Southern Natural Gas Corp., including the Mobile division, which has a total mileage of approximately 215 miles, reaching from Yazoo City through Jackson and Hattiesburg to Mobile. Lateral lines from this project will include Laurel and lines to Gulfport, Biloxi and Pascagoula.

The Montgomery division, approximately 104 miles, will be constructed from Tuscaloosa southeast and east to a point near Columbus, Ga., with lateral lines which will carry natural gas to Selma and Montgomery for distribution through the local companies. Laterals will be built to Tuskegee in Macon County; Auburn and Opelika in Lee County. The contracts also include the Macon division, approximately 185 miles long, which will be built from a point near Atlanta, Ga., to Griffin, thence to Macon, Ga., and east into Wilkinson County. Lateral lines from this division are expected to be built to Thomaston, in Upson County, and Milledgeville in Baldwin County.

It is expected that on all three of these divisions lateral lines will be constructed during the summer to serve a number of smaller towns and communities. Smaller cities and towns will be served in Mississippi by the Mississippi Natural Gas Corp., in Alabama, by the Alabama Natural Gas Corp., and in Georgia by the George Natural Gas Corp., all of which companies are affiliated with the Southern Natural Gas Corp.

The Mobile division contract will be executed by the Natural Gas Engineering Corp., excepting the clearing of the line, which has been awarded to C. S. Seale of Sicily Island, La., and on this same division contract for stringing the pipe has been let to Cox & Carpenter of Bastrop, La.

The contract for the Montgomery division has been awarded to O'Brien Brothers of Chicago. The work on the Macon division has been let to W. S. Bibb of Birmingham, who constructed the Meridian lateral. On each of the divisions, pipe for this construction, which during the summer will involve the expenditure of approximately $15,000,000, has been shipped to various points and it is expected that natural gas will be available from these projections to the points where they terminate during the early part of September.

To provide additional compressor capacity for the system, made necessary by reason of the extensions, it is announced that a contract has been awarded to A. M. Lockett & Co. for the construction of a compressor station at Pickins, Miss., containing five 1,250 horsepower compressors, which will involve the expenditure of about $300,000. The same company will provide one additional 1,250 horsepower compressor for the Reform Station, which was completed last year. There will be constructed at D'Armandville, Ala., a compressor station with two 1,000 horsepower compressors, which have been ordered from the Cooper-Bessemer Corp. A portion of the construction of these compressor units will be done by the Natural Gas Engineering Corp. The expenditure for the additional units will approximate $1,210,000.

Materials have been ordered and work will begin within the next few days upon the compressor units, while work is going forward rapidly upon the lateral lines than have been announced. Contracts for pipe, involving the expenditure of approximately $4,000,000, have been given to the United States Steel Corp., the Republic Steel & Iron Co., and the A. O. Smith Engineering Corp. of Milwaukee.

Watching Pettus Area, in Bee County

Is Field With a Vast Amount of Information Still to Be Worked Out. Pipe Lines Are Now Being Laid to It

By B. D. Stevenson

SAN ANTONIO, Tex., June 16.—No area in Southwest Texas is more closely watched at this time than the Pettus area in northern Bee County. From Grayburg Oil Co.'s No. 1 Kimball on the west which has set casing at 3,553 feet to Morgan-Tidal's No. 1 Perrira in Goliad County on the east which has a total depth of 4,314 feet, the area is 16 miles long and from Morgan's No. 1 McKinney, a producing gas well in the George Habbermacher Survey on the north, to the Nichols two gas wells on the Hicks land at Normana on the south, is a distance of 9 miles.

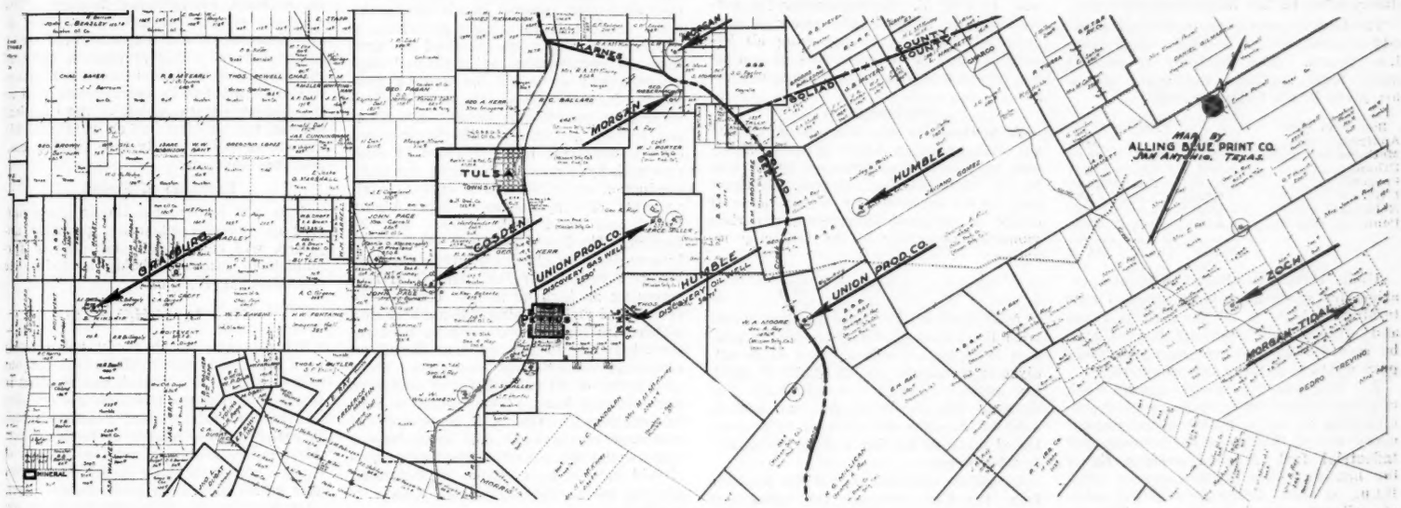
There are nine wells producing oil, seven of them in a group in the center of the field producing at around 3,900 feet, Cosden's No. 1 McKinney producing at 3,633 feet 2½ miles to the west of the group of seven; and Union Producing Co. has a gas and oil well 2½ miles east of the group of seven producing at around 4,000 feet. Grayburg is about to make a well 7 miles west of the group of seven and F. P. Zoch has a gas well at 4,232 feet 7 miles east.

The map accompanying will show the location of the various important points in the field excepting the two Nichols Oil Corp. gas wells on the south which are not shown. One of these is producing at about 1,900 feet and the other is producing gas and about 60 bbls. of oil at 3,641 feet. They are 800 feet apart. The first well completed in the area was the gas well of the Union Producing Co. as shown in the Pierce Miller Survey in the center of the map and it was brought in only a few months ago. The area has literally "burst" upon Southwest Texas.

A study of the map and the varying depths of the producing wells in the field shows at once that it is a field with a vast amount of information yet to be worked out. The field for the week ending June 7 produced an average of 3,900 bbls. of oil daily. Pipe lines are being built to it. Gulf Coast Pipe Line Co. is laying a line to Aransas Pass and will run the oil of the Union Producing Co. Humble also is laying a line.

Gravity of the oil from the wells in the center of the area is approximately 40 A.P.I. and of Grayburg's No. 1 Kimball 36. That from Nichols' No. 3 Hicks is about 60 gravity.

It has been assumed in years past, before any production was obtained in that area that the fault line and structure would be nearly east and west, but a little to the northeast and southwest. Extending the line 12 miles farther to the southwest from the Grayburg test would carry one into the Three Rivers territory where there is shallow gas and some oil. Naturally the whole area has been leased up and trading is very active.



Map of Pettus area, northern Bee County.

New Mexico Opposes Proration Until Field Makes 100,000 Bbls.

DENVER, Colo., June 14.—Proration in the eastern New Mexico oil field will not receive favorable consideration until the field is making as much as 100,000 bbls. daily, Austin D. Crile, state land commissioner of New Mexico, quotes the state geologist as saying. Mr. Crile is opposed to proration and recently at Roswell vetoed a plan of operators to curtail drilling.

The oil coming from Lea County is liable to cut production in West Texas unless New Mexico agrees to proration.

Commissioner Crile made the following statement:

"The New Mexico situation stacks up like this:

"Any conservative program in the State comes under the direction of the state geologist and that gentleman says that he is not so keen about prorating the production of Hobbs High. I understand that he says he might talk prorating after the field is producing 100,000 bbls. but that his State needs the revenue from the oil for road and school purposes and that he is going to see to it that it gets it. Without his co-operation the field must be developed on a large scale and the pipe line companies must get ready to protect their affiliated producing organizations by affording a market outlet."

INCREASING USE OF AERIAL SURVEYS BY GEOLOGISTS IN SOUTHWEST

By Julian Capers, Jr.

A survey was made recently among the petroleum geologists of the Southwest regarding the utilization of aerial photography in their work. The questionnaire was compiled by the Fairchild Aerial Surveys, Inc. The expressions "in many cases" and "in certain areas" seemed to characterize the answers as a whole, particularly from men working in eastern Oklahoma and the southeast half of Texas. One geologist working in this latter region, who has examined some 5,000 square miles of aerial photography, stated very positively that his work was expedited about 1,000 per cent by the use of aerial photography. It is obvious from the answers received that those who have used aerial surveys extensively are the ones who must definitely consider the service as an aid to the effective carrying out of field work.

The fact that the photographic map enables the field party to keep located with reference to all the area being worked was frequently brought out. The photographic map makes a desirable base map, showing stream courses, roads, railroads, and other physical features valuable in carrying on geological explorations.

Surface outcrops and faulting are photographically recorded wherever apparent on the surface. If it is not possible to see the geology from the air, the chances are it is even more difficult to see on the ground. The opinion that vegetation is frequently a handicap in the study of aerial photographs seemed more or less general. The type of vegetation is an index to the soil contact and is a direct aid, rather than a handicap, in the interpretation of the photographic maps.

In the regions of moderate or high relief, stereoscopic examination of overlapping pairs of aerial photographs enable the geologist to locate immediately the predominating or significant structures.

Geologists in the Southwest are becoming conscious of the advantages of the use of aerial photography and reconnaissance, and 40 per cent of leading geologists have resorted to this method in carrying on exploration work, according to the tabulated results of a questionnaire sent to a representative list of southwestern geologists by Stuart Moir, southwestern manager of the Fairchild Aerial Surveys, Inc., of Dallas, Tex. Eighty-four per cent expressed the opinion that aerial photographic maps expedite field work, 16 per cent expressed no opinion, and not a single geologist returned an adverse reply.

"Are geological features, such as outcrops, soil contrasts, or contracts, and faulting, sufficiently revealed on aerial photographs to be of value?" was the second question asked, and to this 86 per cent of the geologists answering replied "Yes." Six per cent said "No," and 8 per cent expressed no opinion.

Sixty-eight per cent believed that drainage, physical features and the character of vegetation as revealed with photographic accuracy constituted desirable information for their work, and only 1 per cent did not think so, with 31 per cent noncommittal.

Seventy-four per cent answered "Yes" to the question: "Would it be desirable for you to study an area in actual relief, as is possible by stereoscopic examination of aerial photographs?" One per cent answered "No," and 25 per cent expressed no opinion.

DELEGATE TO CONFERENCE

Scott Turner, director of the United States Bureau of Mines, has received notification from the Secretary of State as to his designation as a delegate on the part of the United States to the second plenary meeting of the World Power Conference to be held at Berlin the latter part of June, and he has also received from the same source his appointment as one of the two American delegates on the part of the United States to the International Congress of Mining, Metallurgy and Applied Geology to be held at Liege the end of June. Mr. Turner is also an official delegate of the American Committee of the World Power Conference, and carries credentials of the American Institute of Mining and Metallurgical Engineers to the same conference.

Future Natural Gasoline By-Products

Possible Additional Profit May Be Gained and New Industries Developed. Example of Coal Industry Shows Possibilities

By F. L. Kallam and L. J. Coulthurst
Southwestern Engineering Corp.

The rapid strides in technical knowledge of natural gasoline manufacture which has resulted in the practice of mechanically freeing the product of its most volatile components has caused the producer to look into production of products other than just gasoline. It is now realized possible additional profit may be gained through development of a line of what today would be considered by-products. Tomorrow, these same products may form an industry which is not a mere side issue, but rather one capable of standing on its own merits. Such an industry, aside from possessing ample markets for its products, must also command vast supplies of raw materials. Just what does the natural gasoline industry offer in this latter respect?

The first thought is the enormous quantity of processed gas available from gasoline plants. The analyses of several gases from southern California plants are given in the following table:

Source of gas: Analysis, mol%	Santa Fe Springs	Long Beach	Brea
Methane and lighter	89.28	84.54	80.07
Ethane	6.62	6.94	9.46
Propane	4.10	7.22	10.47
I-Butane	0.00	1.30	0.00
N-Butane	0.00	0.00	0.00
Pentanes plus	0.00	0.00	0.00
	100.00	100.00	100.00

Under certain conditions of plant operation dry gases have been reported containing as high as 99 per cent methane and ethane, and hence in general may be regarded as a source of a relatively pure mixture of these two compounds.

At this time it would appear such mixtures cannot be further processed economically so as to threaten the present major use of this gas as a domestic and industrial fuel. A good average figure for heating value of this gas is 1,000 B.t.u., or about twice the calorific value of ordinary manufactured gas. The extent of utilization of natural gas as a fuel is graphically shown in the accompanying map, together with territories in which its use is now being extended. The importance of natural gas as a fuel is readily apparent from this map.

Carbon Black

In fields which are too remote from large fuel-consuming centers, or where production exceeds demand, gas may be burned with an insufficient amount of air to yield carbon black. This carbon black is a very finely divided flocculent form of carbon used largely in manufacture of printer's ink, stove polish, paint and filler for all kinds of rubber goods. From the predominating method of manufacture there is produced on the average about 1.5 pounds of black per thousand feet of gas treated, the value somewhere between 8 to 9 cents a pound at the plant. Actually there is available from each 1,000 feet of methane in the gas, 31.7 pounds of carbon black, while ethane theoretically will yield twice this amount. The procedure is thus seen to be highly inefficient since the amount of black recovered in a merchantable form is approximately 2 per cent of available material in the gas. This fact has stimulated development work so that during the past two years several decomposition methods have been devised which permit yields of from 12 to 14 pounds of carbon black per 1,000 feet of gas. Even with such yields the efficiency of the process is none too high and were it not that black derived from gas has certain properties which cannot successfully be duplicated in carbon manufactured from other sources, the industry could not hope to survive.

Subjecting dry natural gas to thermal decomposition will yield a gas substantially all hydrogen in addition to carbon black. The small amounts of hydrocarbons and oxides of carbon present in this gas can supposedly be removed by liquefaction, followed by fractionation and absorption, yielding practically pure hydrogen. This obviously must be the case as it is reported the Dupont company utilizes this method for hydrogen required in the Haber process of ammonia synthesis. This process requires three volumes of relatively pure hydrogen to be mixed with one volume of nitrogen obtained from the atmosphere, the mixture being passed through a conversion chamber in contact with a catalyst under pressures ranging from 200 to 900 atmospheres and temperatures ranging from 400° to 700° C. Unfortunately the outlet available through this means is comparatively small, even assuming all hydrogen required in production of synthetic ammonia were obtained from natural gas.

Berginization

A method for the conversion of dry gas into hydrogen which gives considerable promise is that proposed by Bergius in the "Berginization" of coal. Methane may be decomposed with water vapor at 2,010° F. to yield hydrogen and carbon monoxide according to the following reaction:

$$CH_4 + H_2O \leftrightarrows CO + 3H_2$$

Additional water vapor is then mixed with these two products, the entire mixture being passed over an iron oxide catalyst at a temperature of 1,292° F. yielding carbon dioxide and additional hydrogen. The carbon dioxide can now be washed from the gas mixture by conventional methods leaving a gas substantially all hydrogen.

It will be observed that if the products from the first reaction are taken and heated to about 400° C. at 130 atmospheres in presence of a zinc oxide chromium oxide catalyst methanol or methyl alcohol will result. The reaction is as follows:

$$CO + 2H_2 \leftrightarrows CH_3OH$$

Now methyl or wood alcohol is used chiefly as a source of formaldehyde and for methylation purposes in dyestuffs and fine chemical industries. It is actually being manufactured in Germany, France and England by this method at a reported cost of 24 to 30 cents per gallon. The usual wood alcohol made by distillation of wood residues sells for 38½ cents per gallon, allowing ample margin for competition from methanol.

Fischer uses this same reaction with an alkalized iron catalyst to produce instead of methyl alcohol a combination of higher alcohols and hydrocarbons suitable for fuel in internal combustion engines. For the sake of brevity he called this mixture "Synthol." Much has been published about the possibilities of this process, but it is only recently production of synthol in Germany from carbon and water has got beyond the semicommercial state, so that little is known yet regarding its cost. Certainly it is not competitive with the present prices of gasoline in the United States.

Disintegration of Dry Gas

The disintegration of dry gas is also subject to action of various types of electric discharge, where in all cases the main product is invariably acetylene, a hydrocarbon which can be used for synthesis of acetaledhyde, ethyl alcohol, acetic acid, and as a gas for welding purposes. In these electric-arc processes gas containing methane is passed through a low tension arc at atmospheric pressure, carbon deposition being retarded by dilution with hydrogen. Aside from the main product of acetylene and hydrogen, small amounts of ethylene as well as higher liquid and solid hydrocarbons will be formed. The liquid products are decidedly acetylenic in character, while the carbon is a very finely flocculent form representing as high as 20 per cent of the theoretical yield. Using a Schonherr arc, efficiencies for the process have been reported as 35 to 40 per cent based on electrical energy used, equivalent to a production of 70 to 80 litres of acetylene per kilowatt hour. This compares very favorably with the carbide process of acetylene manufacture. If these laboratory results are any criterion this method should have a good chance of industrial success where cheap electrical power is available.

Fischer Process

Until October of 1928, when Fischer made known his results, it was always believed that the heating of methane would result in its breaking down into its two composing elements according to the following reaction:

$$CH_4 \rightarrow C + 2H_2$$

Fischer proved, however, that by controlling the temperature and duration of heating period, even in absence of catalysts, methane could be converted into higher hydrocarbons of an aromatic nature. The benzol so produced has a very high antiknock value and hence would serve as an excellent blending medium for ordinary gasoline. Results so far from semicommercial units would indicate acetylene is an intermediate product to the formation of benzene and its homologues, and it is this component which tends to crack at the temperature of formation into carbon and hydrogen. Consequently it has been found necessary to shorten heating periods at temperatures of 1,000-1,200° C. and substantially atmospheric pressure to prevent this undesirable reaction from taking place. Also, pyrolysis must take place out of contact with active materials such as iron and nickel and practically all work so far has been carried out using porcelain tubes, which has resulted in production of hydrocarbons to the extent of 12 to 20 per cent on a basis of methane treated. The cracking of natural gas, while now in experimental stage, appears to have a bright future. This is true in spite of the fact there will be numerous mechanical difficulties to be overcome as well as the complete working out of the chemical side of the problem which may possibly lead to use of a catalyst to further control the reactions.

Emission of Fumes

It is well known that the ordinary natural gas burner, when not properly adjusted, will emit large quantities of formaldehyde fumes probably according to the following reaction:

$$CH_4 + O_2 \rightarrow CH_2O + H_2O$$

Consequently much study has already been devoted to the oxidation of gaseous hydrocarbons. This work has resulted in realization that the reactions are complex and lead to mixtures of products which in many cases cannot even be identified. Also, many products, such as oxides of carbon, are practically worthless. Products which have been produced from natural gas containing mainly methane are as follows:

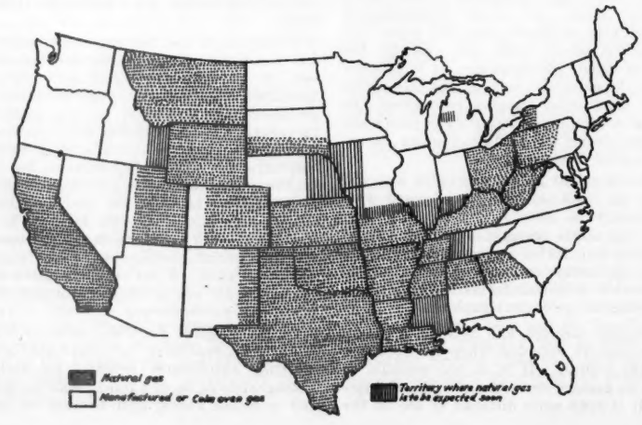
Methyl alcohol, formaldehyde, formic acid, carbon monoxide, carbon dioxide, carbon, hydrogen and water.

The fact that this list is not more imposing is due to the fragmentary state of our knowledge of oxidation. To date, the most encouraging success in oxidation is a commercial plant in the Mid-Continent employing partial oxidation of natural gas. Here the product is over 15,000 gallons daily of a mixture of formaldehyde and methyl alcohol used as a solvent in synthesis of bakelite. The conditions governing such quantitative production of products by partial oxidation are those of proper mixing, exact temperature and catalysis. Difficulties of controlling such reactions to give a single desired product are to be expected since many primary oxidation products oxidize in turn much more readily than do paraffins used as a starting material. The vastness of the field susceptible to oxidation makes it one of the most enticing from the standpoint of reward providing various reactions can be mastered and controlled.

Other Products

Providing proper temperature and catalyst is employed, natural gas can be made to react slowly with chlorine to form other products than hydrochloric acid and carbon. In all such chlorination reactions it is vital to employ low temperatures, well under control, to prevent an explosive union of these two materials. So far catalysts employed have been finely divided nickel, copper, tin, lead, platinum and charcoal. By such means it is possible to treat gas containing methane with chlorine and produce methyl chloride, although methylene chloride, chloroform, and carbon tehachloride will

MAP SHOWING THE EXTENDED USE OF NATURAL GAS AS A FUEL



be formed simultaneously to a lesser extent. These reactions are as follows:

$$CH_4 + CL_2 = CH_3CL + HCL$$

$$CH_3CL + CL_2 = CH_2CL_2 + HCL$$

$$CH_2CL_2 + CL_2 = CHCL_3 + HCL$$

$$CHCL_3 + CL_2 = CCL_4 + HCL$$

It is apparent that in these step-like reactions one-half the chlorine replaces hydrogen which combines to form hydrochloric acid. This means that although chlorine costs about 3 cents per pound, its cost to the process is double this value since one-half of the chlorine used appears as hydrochloric acid. This fact, together with high initial cost of chlorine makes the process of doubtful commercial value, although methyl chloride can be made in this fashion quite conveniently. Then also, methyl chloride is chiefly used at present as a refrigerant, for which there is only a trivial demand. Doubtless success of the chlorination method lies in control of the reaction such that chloroform and carbon tetrachloride can be formed in quantity which will allow of competition with present established ways of making these products.

Ethane

Turning now to the second predominating component in natural gas, ethane, we find again the greatest commercial possibility seems to lie in a cracking operation. Just as in the case of methane, ethane can be converted into aromatic hydrocarbons which are so desirable in motor fuel due to their antiknock characteristics. Such transformation seems most pronounced at temperatures around 800° C. where the conversion is approximately 15 to 25 per cent of the ethane to aromatics. In fact it may be concluded that gases comparatively rich in hydrocarbons higher than methane will yield about three times as much benzol as gases rich in methane.

By controlling the cracking reaction it is also possible to produce the corresponding olefine. For instance, in the region of 600° to 700° C. ethane will break down into ethylene, C_2H_4, a product which is much more reactive than the saturated hydrocarbon. Such a system is now in satisfactory commercial operation wherein the basic ethane is obtained from natural gas by fractional distillation. Cracking of this ethane takes place in earthenware tubes at approximately 600° C. producing ethylene according to the following reaction:

$$C_2H_6 \rightleftharpoons C_2H_4 + H_2$$

Actually the ethylene so formed is absorbed under pressure in acetone. Releasing this pressure allows the ethylene to come in contact with hypochlorous acid which results in the formation of ethylene chlorohydrin. This reaction is as follows:

$$C_2H_4 + HOCL \rightarrow \begin{matrix} H_2 = C - CL \\ | \\ H_2 = C - OH \end{matrix}$$

This product is a substance characterized by great chemical activity and hence is used in the preparation of a large number of organic substances. For example, ethylene chlorohydrin combines with analine to give hydroxyethylanaline which can be used in manufacture of indigo. The present chief derivative of ethylene chlorohydrin, however, is glycol, arrived at through hydrolization as follows:

$$\begin{matrix} H_2 = C - CL \\ | \\ H_2 = C - OH \end{matrix} + HOH \rightarrow \begin{matrix} H_2C\,OH \\ | \\ H_2C\,OH \end{matrix} + HCL$$

Ethylene glycol is the simplest glycol, its chief use being as an antifreeze compound.

Production of Alcohol

The production of alcohol from ethylene by absorption in sulphuric acid

$$C_2H_4 + H_2SO_4 \rightarrow C_2H_5HSO_4$$

$$C_2H_5HSO_4 + H_2O \rightarrow C_2H_5OH + H_2SO_4$$

has been studied exhaustively on a large scale, although at present no ethyl alcohol is being manufactured by this process. Attention is now being given to the direct combination of ethylene and water according to the scheme:

$$\begin{matrix} CH_2 \\ || \\ CH_2 \end{matrix} + H_2O \rightarrow \begin{matrix} CH_3 \\ | \\ CH_2 - OH \end{matrix}$$

In fact, a number of firms are using this process for small commercial productions, and it appears promising for large scale operation.

If cheap chlorine were available the already known reactions with ethane could be utilized to produce ethyl chloride. This material could then be hydrolized to ethyl ether and ethyl alcohol. As with all such processes, however, a cheap supply of chlorine is essential for economic success. Likewise, ethylene reacts smoothly with chlorine to form ethylene chloride.

Carbon monoxide, carbon dioxide and water are products of oxidization of ethane, but under controlled conditions formaldehyde may be recovered. Likewise, when ethylene is oxidized without a catalyst at about 585° C. the maximum yield of formaldehyde is obtained. While there are any number of other reactions known for ethane and ethylene, none has become industrially important.

Substitute for "Blau" Gas

Ethane only recently was utilized, on a limited scale, for the manufacture of a substitute for "Blau" gas. This was occasioned by the visit of the dirigible Graf Zeppelin to the United States. During this period the ethane component of natural gas was used as the fuel gas to replace the "Blau" gas for the return flight to Germany. The desired ethane content was removed from the dry natural gas by low temperature fractionation of the order of 0° F. It will require an active and far-seeing imagination to predict the future possibilities of ethane as a fuel gas.

The possibility of utilizing propane content of dry gas for a major reaction is rather remote since this component is always present in extremely small percentages. In fact this is also the case for heavier hydrocarbons, as iso and normal butane, pentanes and the like. Fortunately all of these fractions are available in either finished plant product or in various vent gases, such as from the run tank, storage tank, rich oil tank, or heat exchange degasifier. Probably one of the best sources of propane is from residue gas from the rectifying column, where the content may be as high as 95 per cent of total volume. These high percentages greatly tend to offset the smaller total volume of gas compared with small percentages and large volumes in the case of natural gas itself.

Decomposition of Propane

The decomposition of propane by means of cracking in temperature range of 600° to 700° C. results in two simultaneous reactions as follows:

$$C_3H_8 \rightarrow C_3H_6 + H_2$$

$$C_3H_8 \rightarrow C_2H_4 + CH_4$$

The formation of these two major products, propylene and ethylene, is greatly retarded at temperatures around 800° C., there being formed large quantities of hydrogen and methane, together with some aromatic hydrocarbons. Above 800°, only hydrogen, methane and carbon are formed, and if active catalytic materials are used, these same products will predominate at all temperatures.

The fact that propane may be converted into propylene should warrant considerable study since this olefine can readily be converted into isopropyl alcohol, a material which has a high industrial value as a denaturant for grain alcohol. Isopropyl alcohol is also extensively used for rubbing alcohol, as a sterilizer for surgical equipment, as a solvent for varnish and paint materials, as a solvent for phenol, and as a base for making propyl esters for pyroxylin solvents. Success in producing propylene from propane undoubtedly lies in controlling the reaction such that of the resultant products propylene will predominate. These gaseous products are then absorbed in low temperature concentrated sulphuric acid, and providing temperature is correct, ethylene, if present, will pass through this acid wash without absorption. The acid containing dissolved propylene is now run to a dilution still in which sulphuric acid esters are converted into isopropyl alcohol and sulphuric acid. The alcohol is then recovered by fractionation and further purified for commercial use. Higher alcohols are at present made by this process except that the basic material is still gas from cracking plants. It should be noted this method also affords production of ethylene, which can be processed as described, or used in a purified state for anaesthesia or for ripening fruit. Ethylene has been used with considerable success for this latter purpose since there is a diminution of losses due to decay through shipping green fruit to market and artifically ripening it upon arrival.

Production of Acetaldehyde

The production of acetaldehyde from propane is possible by means of oxidation providing the reaction temperature is between 300° and 350° C. This reaction is as follows:

$$C_3H_8 + O_2 \rightarrow C_2H_5.CHO + H_2O$$

$$C_2H_5.CHO + O_2 \rightarrow CH_3.CHO + H_2O + CO$$

The dilution of the propane with other constituents or the use of a copper or nickle catalyst will depress the formation of $CH_3.CHO$ and result in the formation of unsaturates according to the following reactions:

$$C_3H_8 + \tfrac{1}{2}O_2 \rightarrow C_3H_6 + H_2O$$

$$C_3H_8 + \tfrac{1}{2}O_2 \rightarrow C_2H_4 + CH_3OH$$

To date these reactions have been of only laboratory interest.

Of more interest probably will be the oxidation of isopropyl alcohol, formed from propane as described, directly to acetone which can compete with acetone produced in the usual manner by fermentation. The best catalyst for this reaction is copper and the corresponding temperature about 200° C. The reaction is essentially a dehydrogenation, and results in a yield of acetone of over 90 per cent of the theoretical.

Enrichment Purposes

As early as 1927 the United States Bureau of Mines suggested the use of

(Continued on Page 114)

TABLE SHOWING BY-PRODUCTS AND THEIR UTILIZATION

Material	Synonyms	Structural formula	Shipping	Uses
Normal butyl carbinol	Primary normal amyl alcohol 1-pentanol	$CH_3\,CH_2\,CH_2\,CH_2\,CH_2OH$	1-100 gallon iron drums	Synthesis of n-hexoic acid
Isobutyl carbinol	Isoamyl alcohol Primary isoamyl alcohol	$(CH_3)_2{>}CH\,CH_2\,CH_2OH$	1-100 gallon iron drums	Substitute for fusel oil
Secondary butyl carbinol	Active amyl alcohol	$CH_3\,CH_2\,(CH_3){>}CH\,CH_2OH$	1-100 gallon iron drums	Substitute for fusel oil
Methyl propyl carbinol	Secondary normal amyl alcohol 2-pentanol	$CH_3\,CH_2\,CH_2\,(CH_3){>}CHOH$	1-100 gallon iron drums	
Diethyl carbinol	Secondary normal amyl alcohol 3-pentanol	$(CH_3\,CH_2)_2{>}CHOH$	1-100 gallon iron drums	
Dimethyl ethyl carbinol	Tertiary amyl alcohol amylene hydrate	$CH_3-C(CH_3)(C_2H_5)-OH$	1-100 gallon iron drums	Synthesis of alcohols
Mixed amyl chlorides	Mixture of all monochlorides of iso and n-pentane		1-100 gallon iron drums	Synthesis of alcohols
Normal amyl chlorides		$C_5H_{11}CL$	1-100 gallon iron drums	
Amylene dichlorides			1-100 gallon iron drums	
Mixed pentanes		Normal pentane $CH_3\,CH_2\,CH_2\,CH_2\,CH_3$; Isopentane $(CH_3)_2{>}CH\,CH_2\,CH_3$	1-100 gallon iron drums	Solvents
Normal pentane		$CH_3\,CH_2\,CH_2\,CH_2\,CH_3$	1-100 gallon iron drums	Solvents
Isopentane		$(CH_3)_2{>}CH\,CH_2\,CH_3$	1-100 gallon iron drums	Solvents
Amylene		$H_2C{=}CH\,CH_2\,CH{=}CH_2$	1-100 gallon iron drums	Amyl alcohol
Pentasol	Uniform product of pure amyl alcohol		1-100 gallon iron drums	Lacquer solvents
Pentacetate	Mixture C. P. amyl alcohol and C. P. amyl acetate		1-100 gallon iron drums and tank cars	Lacquer solvents

Old Oil Field Material Made Usable

Surplus Materials Department Is Playing an Important Part in All Oil Companies in Salvaging Parts

By L. G. E. Bignell
Petroleum Engineering Editor

The day of conservation, not only in the production and utilization of oil and gas, but also of old material that has served its original purpose, has evidently arrived in the oil industry if one is to believe what can be seen at any time in the fields in this country and abroad.

A visit to the Oil Hill, Kans., plant of the Empire companies proved most enlightening and instructive in showing what has been accomplished by this important member of the Cities Service group along these lines and it is almost unbelievable the many uses to which they have put old discarded pieces of equipment that would, under normal conditions a few years ago have been considered scrap.

It is reported that the surplus department of the engineering division of this company realized more than $400,000 in 1929 from reclaimed materials and nonusable equipment that was sold on the open market. Included in this material were 11,590 tons of low grade pipe, scrap iron and nonferrous metals, equivalent to 463 freight cars of 25 tons each that would make up a train about 3½ miles long if coupled into one line.

The amount received included approximately $95,000 for miscellaneous materials from harness and chicken houses to electric motors. The largest item was pipe, the sale of which averaged about $825 per day for the year.

Important Function

The Oil Hill Field and the old field near Augusta, Kans., were drilled about 15 years ago and the age of the wells and the equipment accounts to some extent for the volume of reclaimed materials and the percentage of nonusable salvage each year, and the handling and marketing of such materials is now an important function of the surplus materials department.

The above statements refer directly to material that is sold on the open market and is no longer used by any branch of the Empire companies but in addition to that source of revenue there is another very important department busy at Oil Hill, Kans., that is doing wonders in reworking old material and putting it back on the job again with a considerable saving.

This department is under the supervision of A. J. Leonard, who has the title of supervisor of construction on the company's books but is known to his neighbors in Oil Hill as "Mayor" because all company houses, garages and general maintenance of town utilities are under his supervision.

A story of Mr. Leonard's work with the Empire companies would be of necessity a story of the development of this department for reclaiming old materials and putting them into usable condition. He completed his twelfth year with the company March 13, and is looking forward to many more years of active service there or elsewhere in the company's employ for so long as there is a scrap of old equipment to be worked over he is on the job and happy.

Mr. Leonard was born in East Aurora, N. Y., the home of Elbert Hubbard of Roycroft fame, and whether this had any influence on his future career is not known, but he did start out as a wood, mill and cabinet worker and followed this calling for about 19 years around his old home, moved West in 1918 and secured employment at Oil Hill as superintendent of the planing mill and also had under his supervision the construction work for rigs and derricks.

New Uses for Old Material

From this beginning he has successively been placed in charge of the machine shops, electrical and water departments and finally made superintendent of construction and during the whole time has been using his ingenuity in finding new uses for every old piece of apparatus that comes into his department.

In this work he has been ably assisted by the men in the various shops and yards for all seem to regard it as a game and each one strives to outdo his fellow in finding some new way to use up what is usually called "junk" and how well they have all succeeded is reflected in a recital of some of the things observed in a trip through the shops and around the yards with Mr. Leonard.

The story will have to be run in two installments, for this portion will deal only with equipment made from materials other than pipe and casing, and the uses to which the tubular goods has been placed will be described in a second story to run in the Pipe Line Edition, June 5.

Starting at random, for to segregate what is most interesting and novel is next to impossible, the use made of old telephone and telegraph poles is unique. It may be that some companies cut up their old poles for fence posts or use them for braces and piling but at Oil Hill old poles are made into well plugs, commonly known as "dry hole plugs."

Hoop iron from old wooden tanks has always been considered a more or less useless commodity and around some fields it is a drug on the market for they cannot burn it as they can the old tank staves and decks and bottoms so it is usually allowed to rust and disappear in that way.

Pipe Line Clamps

This is not the case at Oil Hill for they have devised a simple and serviceable pipe line clamp made out of old hoop iron. The hoops are first cut into short pieces about 12 inches long and then heated and shaped like a "U" with the two upper stems drawn in slightly so that when a hole is drilled through the two stems a bolt can be inserted and, after a piece of packing has been placed over the leak, the tightening of the nut on this bolt will draw this simple form of clamp snug around the pipe and make a temporary shut off of the leak.

After the hoops from the old tanks have been used there remain only the redwood staves and the white pine bottoms, but these are never considered as waste material and are reworked and rejointed and formed into staves for other tanks and the bottoms, if at all worthwhile, are also reworked and perhaps made smaller for further use.

This reclaiming of old tank parts is nothing out of the ordinary except that as these tanks go out for their new locations they are not the regular type open top oil tank but are gas tight in every respect and well adapted for use in this particular area where the corrosion of steel or iron tanks is so rapid they cannot be used as receiving tanks on many leases.

A wood tank to be a gas tank must have a wooden head crozed in and be fitted with tight gauge hole covers and pressure relief and vacuum valves. Also domes for conducting the oil and water from the individual pipe lines from each well into the gun barrel.

Gauge Hole Problem

To solve the gauge hole problem cast iron bodies and covers are used and a wooden pressure relief valve with vacuum breaker permits the tank to breathe as necessary. This valve is made out of mahogany and the case or box from white pine.

For the incoming pipe lines from the wells, which are mostly 2-inch size, a box of suitable size is made out of old steel tank plates welded together, and flanges are attached and the whole mounted on the tank deck. This box was first tried without liner and only lasted about 30 days in handling this corrosive gas and oil.

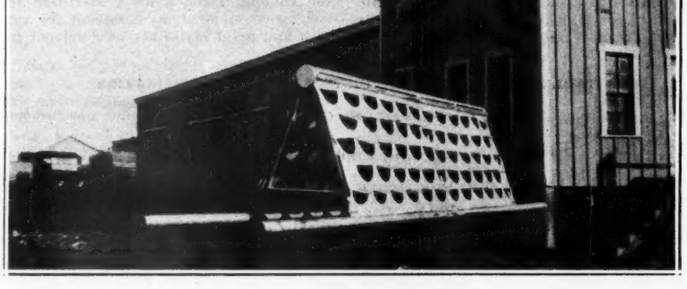
To overcome this difficulty they are now lined with 1-inch white pine strips that are cut from air dried wood and closely fitted into the inside of the steel box on all sides and under the top. This wood swells and makes the life of the steel box about 3 years before the wood will so rot that the moisture and gas can get to the steel forming the shell. This is a rather interesting example of what has been done in this field in combating excessive steel tank plate corrosion and the idea might be carried further for liners for steel tank bottoms in some areas where that portion of steel tanks has shown excessive rusting.

The old steel tanks still have value for they are taken apart and such sheets as show little corrosion are reformed into sheets for reset tanks and again go into service.

Use in Building

Other sheets that cannot be used for their original purpose are used for making houses for various purposes on the leases and the Oil Hill fire station is also made out of old tank material. This station was one of the first structures made out of old tank side sheets and was built from a 1,600 barrel capacity tank. The building is about 12 feet high and 20 feet across the base and the front and back walls are made out of the old tank deck and bottom. The front has been fitted with a neat wooden frame and equipped with double doors for the entrance and exit of the fire engine with smaller door for the people to use, and also one window.

This building attracted so much attention that it was decided further use could be made of old steel tank parts and seven buildings to house pumping powers on as many leases have been made and more are being built as required. These power houses are 30 feet wide at base and about 72 feet long with ceilings about 15 feet high at the top of the arch formed by the curve of the roof. The old sheets are reformed on the job to conform to the size of the building being constructed and are held together with bolts in every fourth hole.



Aerator made from old steel tank sheets.

Fire station at Oil Hill, Kans., made from old steel tank sheets.

After the frame of the house is completed in this manner it is made water tight by sealing the seams between sheets with a fibre roofing cement that is applied from the inside and is not affected by either hot or cold weather. The ends of the building are made from sheets from tank decks and bottoms and necessary doors and windows are finished with wooden sills.

Openings for the rod lines are cut in the sides of the buildings and surrounded with wooden frames and made weather tight. Elevated wooden platforms are built alongside of the buildings over the rod lines and are provided with stairs so that easy access to the building is provided from any direction.

Used to Make Aerators

Another use for old steel tank sheets has been found in the manufacture of aerators to be used with 250 and 500 bbl. tanks handling cooling water for field gas engines at powers and wells. The flat sheets are first marked off with a series of half circles and then cut with a cutting torch on these lines and when these pieces of metal are free they are bent outward and upward and forms a slightly sloping series of shelves.

The aerators are about 12 feet long and 4 feet high and have the forms of an inverted "V" with a length of 5-inch slotted pipe at the apex through which the water is fed and as it pours out of the slots in this pipe it runs down over the sloping sides of the cooler and into the wooden tank below.

The whole aerator is mounted upon lengths of 2-inch pipe and braced so that it can be fully constructed in the shop at Oil Hill and carried by truck to destination. It has the advantage of being easily removable from the top of the tank if it is necessary to get into the tank. Small cooling towers of wood have been used but it was found necessary to fasten them to the tanks in some way

(Continued on Page 114)

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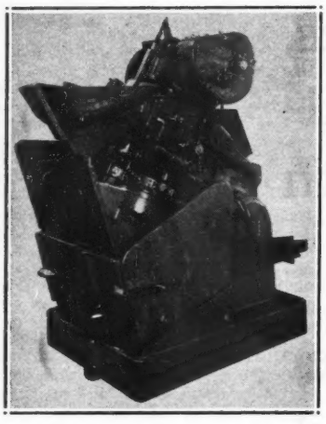
EQUIPMENT AND SUPPLIES

FORMING AND THREADING MACHINE IS ANNOUNCED

A new 1-inch automatic forming and threading machine has been developed by the Landis Machine Co., Waynesboro, Pa., to meet the demands of bolt manufacturers who require an automatic machine for threading bolts and screws to 1 inch in diameter. The capacity of this new 1-inch machine ranges from one-half to 1 inch in diameter and it will handle bolts and screws up to 6 inches in length,



any length of thread up to 2½ inches and any style of point—cupped, flat, round, dog point or full cone.

In appearance this machine is similar to the three-fourths inch unit. Features have been incorporated, however, to make it a faster, safer and more accurate machine. They insure a full thread at the start, an accurate lead, and a minimum amount of taper. This machine employs a special 1⅛-inch Lanra head of the pulloff type, equipped with Landis long-life chasers.

The machine is hopper-fed, bolt or screw blanks being dumped or shoveled by hand into the hopper, then delivered through a magazine to fingers which transfer them to grips in the turret chuck. The length of the finished bolts is controlled by an adjustment of the transfer bracket, this member being graduated for various bolt lengths.

A generous use of heat-treated alloy steel is found throughout the machine. In the entirely new chucking arrangement it makes the turret chuck stronger and lighter and increases the indexing speed. The time element for the return of the forming and threading head and the indexing of the turret chuck is constant, regardless of the diameter, pitch, length of thread, quality of material or threading speed. The instant that the forming and threading operations are completed, an automatic accelerated motion, entirely independent of the cutting speeds, withdraws the forming and threading spindles and indexes the turret. By the use of the new chucking arrangement the chucking and indexing time is decreased, greatly increasing the production.

NEW FEDERAL MODEL TRUCK

A newcomer in the 1 to 1½-ton field is announced by the Federal Motor Truck Co., Detroit, Mich. It is designated as Model D, a 4-cylinder truck. The all-truck construction and modern design of Model D makes it a practical unit which the manufacturer says combines the essentials of light, fast transportation with the endurance qualities of the heavy duty models.

TRAVELING VALVE HELPS TO MEET SAND TROUBLES

The O.C.T. traveling valve, manufactured by the Oil Center Tool Co., Inc., Houston, Tex., is designed to pump fluid where an excessive quantity of sand is present.

The valve stem is designed with a set of holes so arranged that the fluid is sprayed out against the wall of the working barrel immediately above the upper cups, which does not allow an accumulation of sand above the cups. This eliminates the destructive wear.

A set of inverted cups below the plunger wipe the side walls of the barrel clean of sand on each downstroke of the plunger.

The ball and seat are contained in a blind cage so designed that when the ball is off the seat it is suspended in the fluid, preventing the ball from suffering the destructive wear it would receive if contained in an open cage rolling or reciprocating up and down inside of guides with the accumulation of sand acting as an abrasive between the ball and the guides.

The ball stop cage is designed with a ball stop seat corresponding to the area and shape of the valve seat.

The blind cage in addition to containing the ball and seat and ball stop cage is a heat treated plunger.

NEW 4-INCH REAMER OFFERED

Workmen who have spent hours reaming out 4-inch and other large size pipe with a hand file in the absence of a large power machine will welcome the new No. 414 reamer placed on the market by the Oster Manufacturing Co. of Cleveland, Ohio. A feature of this reamer is the screw feed, the pitch of which is so designed that tremendous pressure is exerted by the reaming blades. This eliminates the necessity for pushing against the tool to obtain sufficient pressure for a thorough reaming job.

MEDAL AWARDED TO BAILEY

At the Medal Day exercises held in the hall of the Franklin Institute in Philadelphia, Pa., Ervin G. Bailey, president of the Bailey Meter Co., Cleveland, Ohio, was awarded the Edward Longstreth medal in recognition of his inventions and developments of regulating and controlling devices, and of measuring and recording instruments.

HELIFLEX ROLLER ADDS TO STRENGTH OF CHAIN

Realizing the necessity for stronger rollers and more satisfactory lubrication of A.P.I. chains employed in high speed deep-well drilling, chain manufacturers and oil field engineers have given thought to the subject and one result is the appearance of the new Heliflex roller in the oil fields.

Heretofore A.P.I. chains have been equipped either with solid rollers milled from solid bar stock or made from seamless tubing, or with curled rollers made by forming strip steel around a mandrel.

The "Heliflex" roller, an adaptation of a principle which has been in use for years on roller bearings, is made made of strip steel seven-sixteenths inch wide and three-sixteenths inch thick wound in the form of a spiral. In this construction the grain of the steel follows the helical curve of the spiral, making it difficult, if not impossible, to break the roller.

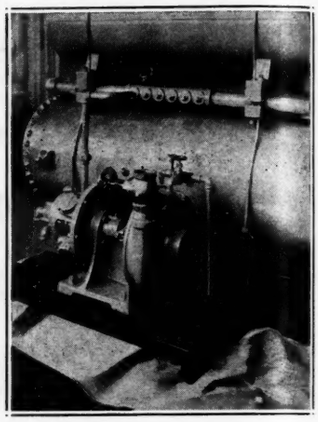
The Heliflex roller is made of special nickel alloy steel selected and heat-treated to resist metal fatigue and crystallization.

FAIRBANKS SCALE CENTENNIAL

To commemorate the invention of the modern platform scale, business and industrial leaders will gather in St. Johnsbury, Vt., on July 4 to pay tribute to the memory of Thaddeus Fairbanks, "father of modern weighing," who gave to the world its first accurate standard of weights 100 years ago. A three-day celebration is announced by W. S. Hovey, president of Fairbanks, Morse & Co. which organization is the outgrowth of the small scale manufacturing business started a century ago in St. Johnsbury by Thaddeus Fairbanks and his brothers Erastus and Joseph P. Fairbanks on an investment of $4,000. Former President and Mrs. Calvin Coolidge will be guests of honor at the celebration, which has the sponsorship of the Vermont Historical Society, the New England Advisory Council and the Chamber of Commerce. Mr. Coolidge was a student at the St. Johnsbury Academy which was supported by Thaddeus Fairbanks. The principal feature of the program will be a historical pageant. There will also be an exhibition of original patent models of scales invented by Fairbanks, which have been borrowed for the occasion from the patent office.

THIS PUMP USEFUL FOR THE REMOVAL OF WATER

The Ingersoll-Rand Co., New York, has announced an air motor-driven pump, known as the "ACV." The pump is a Cameron single-stage, single-suction, open-impeller, volute type and is driven by a four-cylinder air motor. It can be mounted on a shelf at the rear of a portable air compressor. In this position the connecting pipe between the air re-



ceiver and the motor will not interfere with the operation of the hose line supplying air to the drills. Ample space is left on the shelf for a tool box, which does not hinder the operation of the pump.

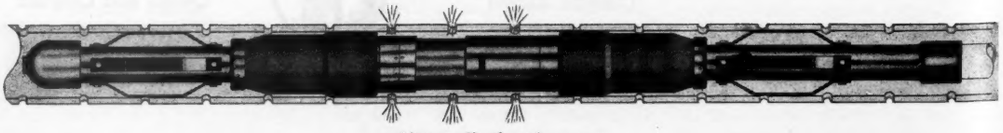
The unit is positive in action and will prove useful for dewatering trenches and excavations that have become filled overnight. It will also keep the workings free from water caused by surface drainage or seepage while the men are at work.

The capacity of the pump, with 60 pounds air pressure at 1,000 r.p.m., is 130 g.p,m. against a 29-foot head. With 80 pounds air pressure at 1,200 r.p.m., the capacity is 125 g.p.m. against a 43-foot head. These figures are based on a 20-foot suction lift.

Don Hagler, formerly with the Oil Well Supply Co. in Houston, Tex., is now with the office of the Lucey Products Corp. in Houston.

DEVICE MADE TO RELIEVE TROUBLES CAUSED BY CLOGGED PERFORATED LINERS

Before pressure is applied.



After application of pressure.

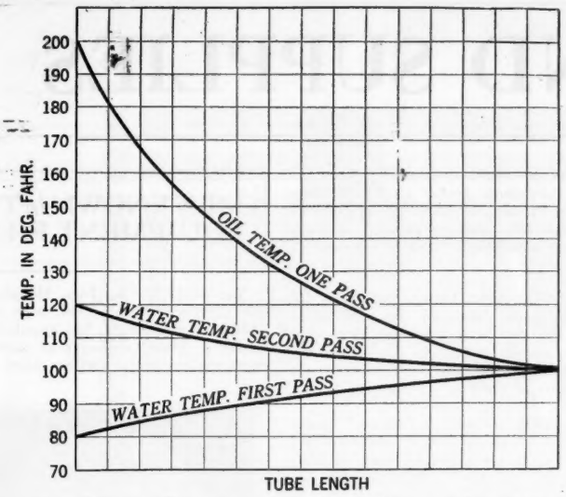
Operators in California and the Gulf Coast fields of Texas are offered relief for their troubles with clogged perforated liners by the use of a new device owned and operated by the Standard Oil Well Cleaning Co., 343 Kennedy Building, Tulsa.

This device, called the Standard Oil Well Cleaner, consists of two packers of the proper size to fit inside the liner to be cleaned and connected with a telescoping joint which opens when a pressure sufficient to compress two coiled springs in the rubber packers is put on the cleaner by the force pumps at the surface.

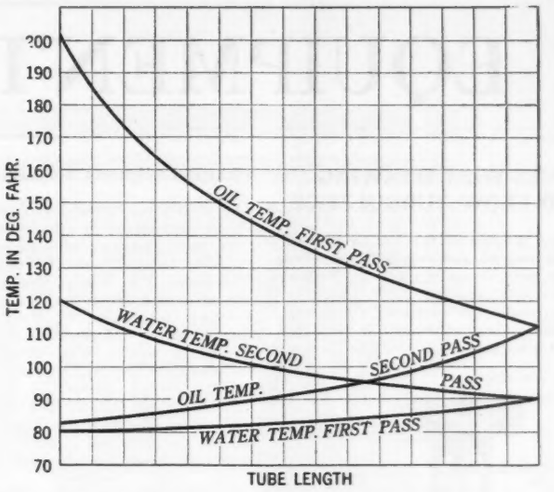
When the telescoping joint is full open fluid can be forced through a set of ports and as the packers are above and below these ports the natural outlet for the cleaning fluid is through the clogged screens in the perforated joint.

When the pump pressure is released the telescoping joints are forced together by the two springs, releasing the rubber packers, and the cleaner can be moved up or down in the liner as required.

The inventor is George E. Newlin, at present located in Tulsa, who says that this device will clean wells that are badly sanded or clogged with paraffin, asphaltum, shale or base sediment. The accompanying cut shows the principal details.



Curve No. 1.—This curve shows the maximum cooling which may be obtained in a heat exchanger with a single pass flow in the shell and a double pass in the tube bundle with an entering oil temperature of 200° and an entering water temperature of 80° and an exit water temperature of 120°. This is based on an infinite amount of cooling surface. With the limited amount of surface used in actual practice the exit oil temperature will be even higher than the 100° shown above.



Curve No. 2—This curve is based on the same condition as curve No. 1, except that the shell is arranged for two passes of the liquid to be cooled. With the same entering and exit water temperature a much greater degree of cooling is possible in theory, and in practice when the new style exchanger is used. With the old style heat exchanger unavoidable leakage past the baffle materially reduces the theoretical amount of cooling obtained by the two-pass design.

able for close terminal differences.

Curve No. 2 gives the cooling ability of a perfect counter current design heat exchanger. It shows that the true counter current flow permits the oil to be cooled to within a few degrees of the entering water temperature. This action is of great value to operators of plants where the supply of cooling water is limited or where its temperature is high.

As such conditions frequently prevail in refinery practice, the Foster Wheeler counter current heat exchanger meets a definite requirement in numerous refineries. It has the accessibility and ruggedness of the ordinary, single pass design.

FOSTER WHEELER CORPORATION
165 Broadway, New York, N. Y.

Branches in Principal Oil Centers

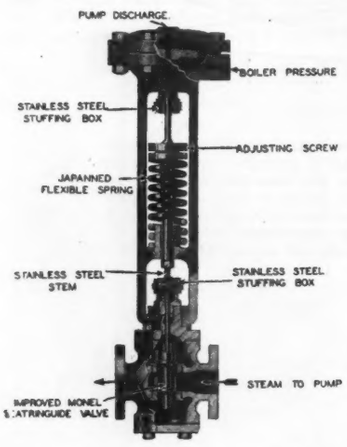
Foreign Associates: Foster Wheeler Limited, London, England.
Foster Wheeler Limited, Toronto-Montreal, Canada.
Societe Anonyme Foster Wheeler, Paris, France

FOSTER WHEELER

EQUIPMENT AND SUPPLIES

REDUCES WIRE DRAWING AND FLOW TURBULENCE

Another member of the Neilan line of automatic control and regulating devices has been put on the market by Neilan Co., Ltd., Los Angeles, Calif. The illustration shows the advanced Neilan excess pressure pump governor. It is fitted with the improved "seatringuide" valve



in which the valve plug and seat rings are milled from Monel metal.

This type of valve is said to reduce flow turbulence and wire drawing.

Neilan governors are made of bronze, cast nickel-iron and chrome-alloy cast steel for pump discharge pressures up to 600 pounds. In the new Neilan line are found the result of several years of research and manufacture of sensitive control devices for the oil and gas industries.

MANOMETER CHECKS UP COMBUSTION MIXTURES

A novel type of flow meter has been developed by the Meriam Co., Cleveland, Ohio, for measuring the mixture of liquid or gaseous fuel used in furnaces for annealing, heat-treating, heating, chemical and process operating, etc. In practically all such cases very accurate mixture must be maintained if production results and economy are to be maintained. The new instrument, which has been mainly used in the metal-working industries, but which is of course adaptable to many others, is made up of a series of compact manometer units. This makes it particularly adaptable to large groups of furnaces and, being simple and rugged, it is not liable to failure or inaccuracy.

Two U tubes are connected to a single reservoir or "well," which is large in volume compared with the U-tubes, although small in actual cubical content. The well is partly filled with suitable liquid, and the free ends of the U-tubes are connected to pipes tapped off the supply lines of air and of gas respectively. It is evident that although both U-tubes are connected to the same well, their liquid levels will vary independently according to the pressure of the fluid in the supply lines. Units such as described may be assembled compactly in any desired number, and their operation is independent of the distance from the supply line flow to be measured.

Strictly speaking, the instrument indicates pressure only. However, it can be made to read quantity of flow directly by inserting in each supply line a suitable orifice disc of known dimensions, and having the manometer unit calibrated accordingly.

TRADE LITERATURE RECEIVED

An article on "Applying Temperature Control Equipment to Oil Refining," by R. D. Bean, manager of engineering development for the Brown Instrument Co., Philadelphia, Pa., is being sent out in the form of a booklet by the company. The 21 pages, which include five full-page illustrations of typical chart records, discuss the various temperature control problems met in refining practice.

The American Rolling Mill Co., Middletown, Ohio, has prepared a bulletin discussing spiral-welded pipe, written by Russell C. Beam, development engineer.

The Hills-McCanna Co., Chicago, is sending out a broadside describing and illustrating the Young tank car bottom outlet valve.

The Oil Well Fishing Tool Co., Long Beach, Calif., has issued a folder describing the construction and operation of the Dumble combination grab, for use in either rotary or cable-tool drilling.

"Some Trends in Industry," by Alfred Kauffmann, president of the Link-Belt Co., is an interesting article in the latest number of Link-Belt News.

A new catalog of gasoline plant equipment manufactured by the J. A. Campbell Co. of Long Beach, Calif., is being sent out. It describes the various units employed in Campbell gasoline plants including absorbers, cooler units and towers, heat exchangers, preheaters, distillation systems, boiler plants, pumps, stabilizers and allied types of equipment, all automatic.

The Bridgeport Driller, published by the Bridgeport Machine Co., Wichita, Kans., appears in a new and attractive makeup, with new style of cover, new department headings and inviting features that insure a reading.

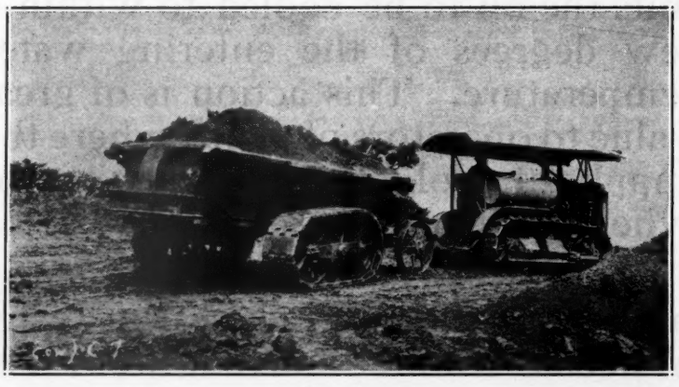
"Beginning the Second Century" is the title of a 20-page booklet prepared by Fairbanks, Morse & Co., Chicago, in commemoration of the completion by the company of 100 years of life.

Bulletins on the Nukeel clinch point reversible dipper tooth, the Nukeel interlock reversible dipper tooth and the physical properties of Miraculoy, an alloy steel, accompany the current number of Sivyer Reports, published by the Sivyer Steel Casting Co., Chicago.

The Hays Corp., Michigan City, Ind., is mailing a new catalog describing its new model flue gas analyzers and combustion test sets.

The industrial control catalog for 1930 issued by the General Electric Co., Schenectady, N. Y., presents virtually a complete compendium of control devices for all classes of industrial plants.

TRACKSON INTRODUCES NEW DESIGN CRAWLER WHEEL



Simplicity, durability and easy, smooth-running operation are outstanding qualities of the new Trackson crawler wheels which are the most recent product of the Trackson Co., Milwaukee, Wis. These wheels are designed for installation on wagons, trailers and bummers to meet the heavy hauling requirements of the oil field industry. Pipe line operators, leaseowners, producing companies, contractors and many others will find them valuable equipment, according to the manufacturer.

Built by crawler traction specialists who have had 20 years' experience in designing and manufacturing tracks for tractors, power shovels, etc., Trackson crawler wheels embody features of construction designed to give profitable performance, low maintenance cost and long life. They are built of the strongest materials—heavy alloy steel castings and drop forgings—and are able to withstand hard wear and shocks and strains proportioned to provide a wide margin of safety over the rated load capacities of the wheels.

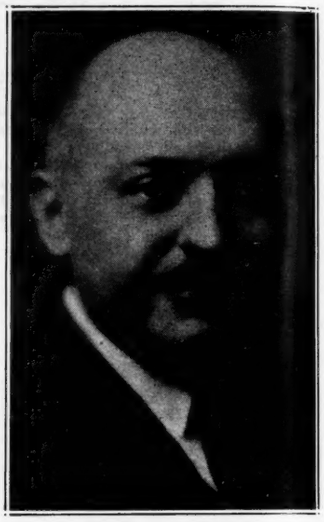
According to R. D. Houghton, manager of the Trackson crawler wheel department, these wheels represent several improvements in crawler wheel construction. For instance, the tension members or links which hold the shoes in rigid rail position are made of extra-heavy drop forgings, especially heat-treated. These links function simply by moving to and fro within one another, without any turning or grinding action, and therefore will wear indefinitely. Small parts such as bolts or toggle-links are eliminated.

Another distinctive feature is the take-up device which provides for tightening the track shoe loop by varying the wheel centers to suit different operating conditions. Since the shoe loops should be neither too tight nor too loose for most efficient operation this take-up device is important.

Mr. Houghton also points out the split-type hardened steel bushings used in the shoe hinges. These bushings are pressed into place and keyed in the lug to prevent turning. They are easily reversible or removable, however, when worn. Trackson crawler wheels may be installed on almost all makes of wagons. They are manufactured in four sizes, with 6, 10, 15 and 20-ton load capacities, respectively.

MEN KNOWN *in* THE EQUIPMENT FIELD

The W-K-M Co., Inc., Houston, Tex., manufacturer of oil field, pipe line, and industrial equipment, has appointed Alexander J. Duaei manager of sales in the western territory. Offices have been es-



Alexander J. Duaei

tablished by the company at 205 West Wacker Drive, Chicago.

Prior to associating himself with W-K-M Co., Mr. Duaei was for 11 years connected with the Johns-Manville Co., for seven years of which he was manager of the public utilities division of that organization. During his connection with Johns-Manville he formed many friendships among executives in the electric light, power, and gas companies throughout the United States. His broad knowledge of pipe line materials and particularly his knowledge of underground construction practices, have given him a leading place in this field.

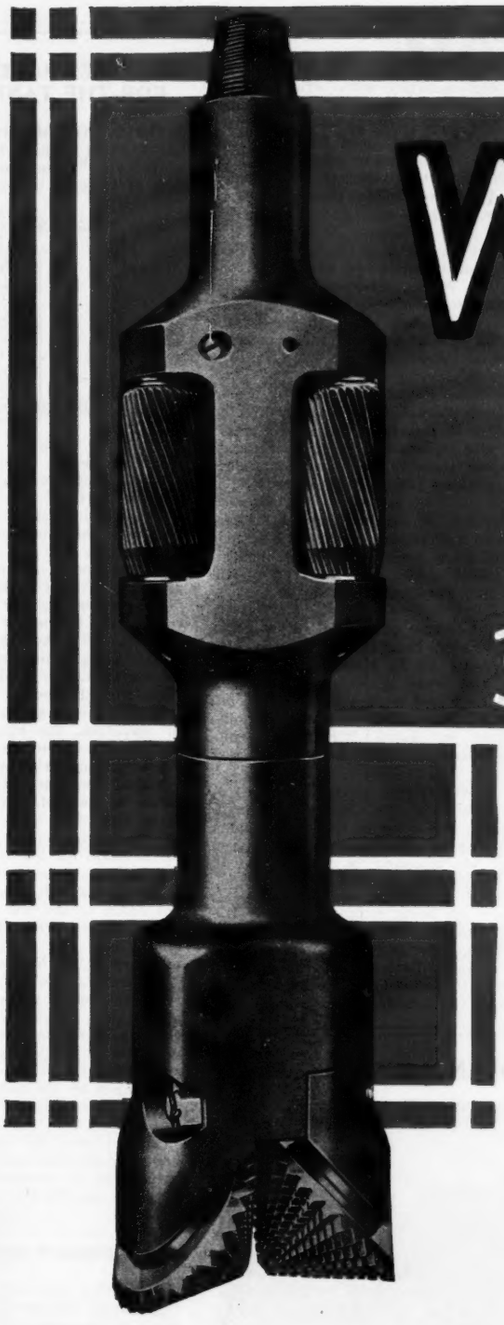
Mr. Duaei was born in Amsterdam, Holland, and was educated in New York and European universities.

BECOMES PART OF AMSCO

The Southern Manganese Steel Co. until recently operated as a subsidiary of the American Manganese Steel Co. and active in the development and sale of "Fahralloy," a heat and corrosion resisting alloy steel, has become a part of the parent company, and will be operated as the Southern Manganese Steel Division of the American Manganese Steel Co. It has opened an office in the Law & Finance Building, Pittsburgh, Pa., in charge of W. G. Hoffman. Mr. Hoffman will handle the sale of both Amsco Manganese Steel castings and Fahralloy heat and corrosion resisting castings.

NEW TYPE OF RESISTOR

Easy connections to rigid terminals are made with a new type of edgewise-wound, heavy-duty resistor recently placed on the market by the General Electric Co. This resistor, designated as CR-9,132, is of the unit-box type. Advantages listed by the manufacturer include unbreakable design, noncorrodible conductor, and maximum heat dissipation for minimum space consumption.



WKW ROCK BIT

and

3-Point Reamer

has a greater cutting surface area, is stronger, will make a lot of hole and make it straight.

One-piece heat-treated alloy shank.

All parts specially heat treated.

Pin lock simple and safe.

Washers securely held against turning, thus avoiding shank wear.

Cutter diameter averages one-third the diameter of hole, permitting larger diameter pins.

Three-point or double 3-point reamers have greater cutting surface area than the conventional 3-point or double 3-point type.

Let us give you some of the performance records of this bit. They will surprise you.

GLOBE OIL TOOLS COMPANY

LOS NIETOS, CALIFORNIA

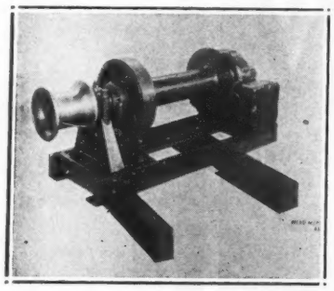
Branches:

Oklahoma City, Okla. Ventura, Calif. Hobbs, New Mexico Bakersfield, Calif.

EQUIPMENT AND SUPPLIES

MEAD-MORRISON WINCH BUILT FOR HARD WORK

The Mead-Morrison all-steel, multi-speed, power-reverse oil field winch, made by the Mead-Morrison Manufacturing Co., Boston, Mass., is flexible, but built for hard service. In each detail great strength combined with light weight is



gained by the liberal use of alloy steels and castings of steel.

These powerful winches are designed for the heaviest duty work found in the oil fields, making a specialty of handling the heaviest machinery.

The drum shaft is made of chrome nickel steel, heat-treated, and is one diameter throughout its entire length. The drum, the worm casing, and the side stand are all of steel and well reinforced.

The worm, of chrome nickel steel with the thread ground after hardening, is carried on ball-bearings, which not only support the load, but absorb all end thrust along the worm. The worm gear is of high grade phosphor bronze with cut teeth.

WHERE CLOSE CONTROL OF HEAT NOT NEEDFUL

The General Electric Co. announces the CR-2992-A-1 thermostat for use with industrial heating units where very close control of the heat is not required. The new device is available in three principal ratings, and the operating ranges are (1) 60° to 200° F.; (2) 150° to 300° F., and (3) 250° to 400° F. The current carrying capacity is 15 amperes at 115 or 230 volt alternating current, or one-quarter ampere at the same voltages direct current. The thermostat will operate with a differential of 5 per cent of the maximum temperature range.

The unit is mounted on a pressed-steel base which has two mounting holes and an upturned ear with an opening for a three-quarters-inch conduit. A drawn-shell cover, held in place by two screws, completes the enclosure of the switch. The cover and base are finished in black duco. Clearances between all live parts and ground are in accordance with Underwriter's specifications. All steel parts are cadmium plated to resist corrosion. The silver contacts afford long wearing qualities. The capillary tube consists of copper tubing of one-eighth-inch outside diameter, having the bellows sealed on the switch end and the bulb on the immersion end.

PETROLEUM PRODUCTS, INC.

Petroleum Products, Inc., have opened general offices at 804 Waltower Building, Kansas City, Mo., to engage in the wholesale tank car marketing of all grades of petroleum products. Directors of the company are R. A. Murray, president; Lee R. Saunders, vice president and general manager; C. C. Carlson, vice president; Dr. J. C. Thompson, secretary, and M. B. Levy, treasurer. Mr. Saunders will be assisted by E. L. Bride.

BUSINESS NOTES

Although the Columbia Cordage Co., Auburn, N. Y., is only 27 years old, 14 of its employes received 25-year service pins at the annual dinner of the company recently.

S. O. Maxwell has been appointed district manager of the Terry Steam Turbine Co.'s New York office. He has been assistant manager.

The Maintenance Engineering Corp., Houston, Tex., has appointed M. N. Aitken sales engineer. Mr. Aitken will assist in the promotion of the more technical specialties for refineries, pipe lines and power plants handled by the company.

E. E. DeBack, formerly assistant chief engineer for the Engineering, Research & Equipment Co., Dallas, Tex., has taken a similar position with Petroleum Engineering, Inc., in Tulsa.

The Johns-Manville Sales Corp., distributor of Johns-Manville products, has established a Texas sales district with headquarters in Houston. T. E. Gossett, who has been sales supervisor of the Houston office, has been appointed district manager.

The Chicago Bridge & Iron Works has opened a new office in Houston, Tex., in the Electric Building, in charge of J. R. Donaldson, formerly in the company's Dallas office.

The Lincoln Electric Co. of Cleveland, Ohio, manufacturer of "Stable-Arc" welders and "Linc-Weld" motors, has removed its Baltimore, Md., distributor's office to 600 North Calvert Street to provide additional space. T. A. Canty, in charge, announces appointment of R. Rude as office manager and C. N. Hilbinger as sales engineer and service manager.

The Butler Manufacturing Co. has appointed Ralph B. Henno eastern and export representative with offices at 130 West Forty-second Street, New York. The New York office is being organized to handle the full line of Butler oil field and oil transportation equipment, steel buildings, welded storage and underground tanks, visible pumps, buckets, funnels, carrying cans and steel barrels.

George B. Allan & Co., Dallas, Tex., sales representative of the Armstrong Machine Works, also of Dallas, has opened district offices in Houston, Tex. W. H. Allan has taken charge of the Houston office. Another branch is maintained in Tulsa.

The Steel Founders' Society of America, Inc., through its managing director, Granville P. Rogers, has adopted a standard sales agreement, order acceptance, quotation sheet, and a set of standard trade customs for that industry.

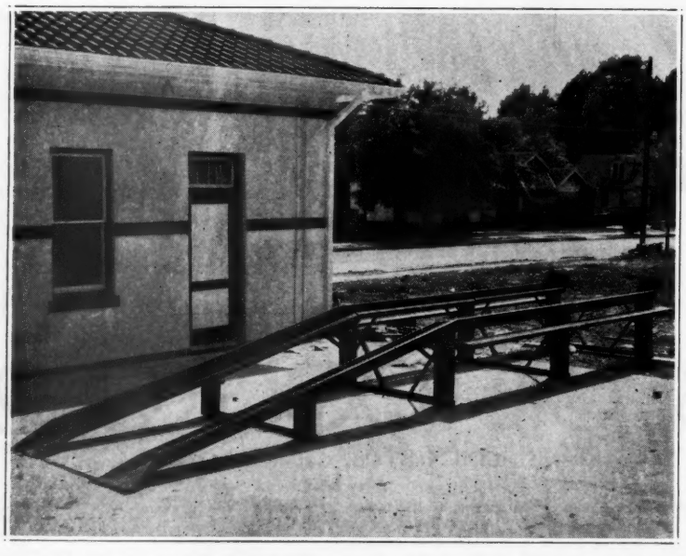
Adoption of national standards for pressure and vacuum gauges was recommended at a general conference held in New York under the auspices of the American Standards Association.

The Chicago offices of Robbins & Myers Sales, Inc., fan and motor division, under D. B. Hutchinson, and the hoist and crane division, under W. J. Scott, have moved their offices from 567 East Illinois Street to the Palmolive Building in North Michigan Avenue. Warehouse stocks remain at old address.

J. M. O'Melveny, salesman for the oil tool division of the Chicago Pneumatic Tool Co., has gone to Calgary, Canada, for a stay of five or six months to represent his company in the sale of its new CP rock bits in that territory.

Plans are being completed by the Rieber Instrument Corp. to begin operations in Texas, Wyoming and Canada, according to J. C. Ballagh, general manager, offering the same type of service that is given in California.

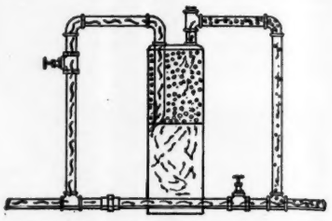
WASH AND GREASE RACK HAS ADVANTAGEOUS FEATURES



The Babeco all-steel wash and grease rack, manufactured for the oil trade by the Beaird Corp., Shreveport, La., is designed for small filling stations and garages as well as large ones. Although it is made for permanency, it can be moved. Dragging by even the lowest cars is not experienced. There are no sharp edges to cut tires and there is no danger of wheels climbing out of the driveways. These racks, shipped knocked down, are assembled easily.

ACQUIRES SALES RIGHTS FOR THE TANNER SYSTEM

The Sullivan Machinery Co., Chicago, has acquired the sales rights for "Tanner-tanks" and "Tannergas," for the prevention of freezing in compressed air lines



and at the exhaust of compressed air tools. The device consists of a tank and bypass piping connected into the air line near the point of use. This tank contains a liquid which forms a gas on combination with the compressed air in the top of the tank. The gas is carried into the air lines, and is the active agent which prevents freezing at the tools.

To use the Tanner system it is necessary only to open a joint in the main air line, and attach the ends to the connector pipes which are a part of the Tanner-tank. The tank is then partially filled with Tannergas in liquid form, as shown in the diagram. When the tank is in operation, the upper valve is open, and the lower one closed. The air is deflected through the bypass at the lower left-hand tee, and into the tank. As it blows on the surface of the liquid in the tank, Tannergas is released to mix with the air flowing out of the tank, and back to the main air line.

From this point none of the air lines or air tools will freeze. The gas does not settle in the low places of the line, but is blown with the air, into every crack and crevice, saturating all the moisture in the line, and the tools.

To prevent dilution of the liquid in the tank, the lower valve is constructed so as to let a small quantity of air pass through, carrying with it the moisture which is in the bottom of the line. This small quantity of air, with the moisture, is rejoined by the main body of air and the moisture is saturated by the Tannergas.

To conserve the gas when it is not needed to prevent tools from freezing, the valves can be reversed, and the air allowed to pass by the tank containing the liquid.

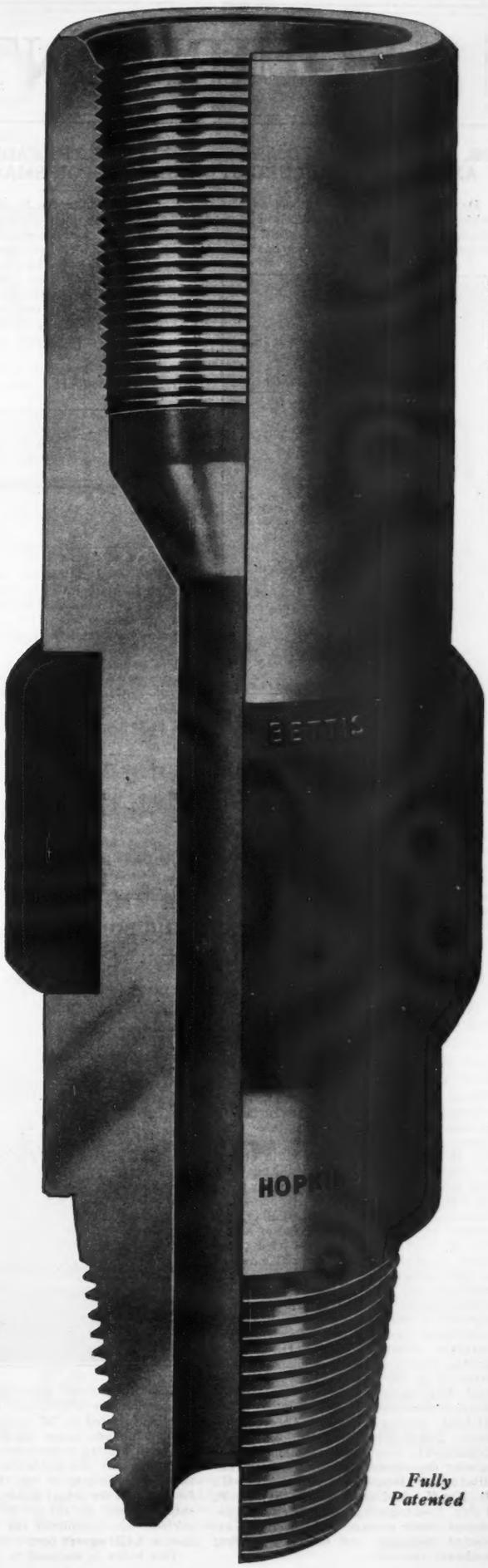
HENDERSHOT SALES ENGINEER

The Atlas Imperial Diesel Engine Co., Oakland, Calif., has made Buck & Stoddard its exclusive oil-field distributor in California and for export. Norman W. Hendershot is now with Buck & Stoddard, Inc., as sales engineer, specializing in Diesel engines. Mr. Hendershot's headquarters will be in Los Angeles. He is closely watching the performance of two 200 horsepower Atlas Diesel engines installed in the Baldwin Hills Field.

TRACTOR COMPANY ORGANIZED

The Gulf Tractor & Euipment Co. has been organized in Houston, Tex., to handle tractors, winches, hoists, backfillers, bulldozers, sidebooms and similar equipment for oil field and pipe line work as well as for use in various other lines. The company succeeds the McMillan Machinery Co. The building now occupied is to be remodeled to provide showroom space, a parts and service department and offices. Roger Barlow is vice president and general manager of the new company.

Equipped with Bettis Protectors



Fully Patented

Hopkins

Anti-friction

TOOL JOINTS AND COUPLINGS

EQUIPMENT AND SUPPLIES

DR. CROOK ENGAGED AS AXELSON METALLURGIST

Dr. Welton J. Crook, engaged as consulting metallurgist by the Axelson Manufacturing Co., Los Angeles, Calif., is a lecturer and writer also and has been

Dr. Welton J. Crook

associated with various companies in a consulting capacity for many years. In speaking of Doctor Crook, the president of the organization, Jule C. Axelson, said:

"On increasing the scope of our manufacturing activities to include gauges, small tools, chrome nickel semisteel castings, and other highly developed lines of manufacture, the metallurgical problems naturally increase. We feel fortunate in obtaining the services of Doctor Crook. It is our intention to add to the metallurgical staff from time to time."

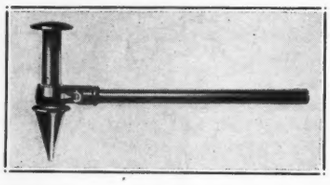
REPUBLIC EXECUTIVES NAMED

T. M. Girdler, chairman of the board, Republic Steel Corp., announces that the corporation organization will function with the following executive personnel: B. F. Fairless, first vice president; E. J. Wysor, vice president in charge of operations; H. T. Gilbert, vice president in charge of sales; R. S. Hall, vice president; W. P. Witherow, vice president; W. H. Oldham, vice president in charge of southern district; J. U. Anderson, treasurer; R. Jones, Jr., secretary; W. B. Ohl, comptroller; W. C. Gubbins, assistant comptroller; A. E. Walker, assistant vice president in charge of sales; W. M. Neckerman, assistant vice president; J. M. Schlendorf, general manager of alloy sales; Norman Foy, general manager of mild steel sales; Harry Rhodehouse, traffic manager; C. A. Ilgenfritz, director of purchases; Walter Massman, purchasing agent; C. H. Elliott, district manager, Warren district; H. B. Carpenter, district manager, Youngstown district; E. R. Portz, district manager, Central Alloy district; A. G. Greenamyer, district manager, Buffalo district; J. L. Hyland, district manager, Chicago district; Frank Webb, manager ore mining department; George Morse, manager coal mining department; F. M. Cardwell, auditor; B. F. Boyer, assistant auditor; W. B. Knuff, chief cost accountant; E. P. Foley, credit manager; C. D. Reese, assistant credit manager; H. M. Hurd, assistant treasurer, and G. H. Freehorn, assistant treasurer.

ANNOUNCE THREADER AND REAMER FOR SMALL PIPE

A new chip chaser, the No. 001, for one-half inch to 1¼-inch pipe, and a chip chaser reamer for one-eighth to three-quarters inch pipe, have just been announced by the Oster Manufacturing and the Williams Tool Corp. Built on the same principle as the Oster No. 00 chip chaser, the new No. 001 has the improved open type die head which allows unusual chip clearance and makes it easy to oil the pipe.

The No. 001 has four die heads—one-half inch, three-fourths inch, 1 inch and



1¼ inch—and a ratchet handle. The ratchet is built into the handle out of the way, but is so placed that the operator can reverse the action of the ratchet or put it in neutral position, with an easy movement of the thumb.

The new chip chaser reamer fits the No. 00 Oster chip chaser ratchet handle. It is sturdily constructed and has three reaming blades. It is made so that it can be instantly attached to or removed from the chip chaser ratchet handle.

COMPANY CHANGES NAME

Neilan, Schumacher & Co., Los Angeles, Calif., manufacturers of automatic control and regulating equipment, will be known in the future as Neilan Co., Ltd. A. F. Schumacher, formerly vice president, has retired from the business.

"AMERICAN" JACK PUMPS INDIVIDUAL OIL WELLS

The new "American" Type 4-A totally enclosed oil well pumping jack, made by the American Well Works, Aurora, Ill., has further refinements of design. The pitman rod in the new 4-A works through a sliding plate that completely covers the slot in the cover. This prevents sand and dirt from blowing into the cover around the pitman rod slot. It is particularly recommended where the jacks are to be set up in sandy territory.

The "American" oil well pumping jack was designed for the efficient pumping of individual wells.

The units are self-contained, having all gears enclosed and running in a bath of oil. They are made in a wide variety of sizes, permitting a length of stroke from 12 inches to 50 inches. These units not only give a steady yield of oil from the individual well, but also make it possible to cultivate the land upon which the wells are located.

One operator, it is said, can take care of a dozen or more "American" units, as they run practically without attention because of their sturdiness and automatic oiling features. All belt driven machines can be operated by either small motors or small engines. The speed of belt-driven units can be varied by changing the size of the pulley on motor or engine.

WILKINSON FACTORY BRANCH

A factory branch of the Wilkinson Controller Co., manufacturer of valves, regulators and vapor recovery equipment, has been opened in Houston, Tex., and offices have been established in the Merchants & Manufacturers Building recently completed. P. H. Wilkinson, formerly in the main factory in Los Angeles, Calif., has charge of this branch, which will serve Texas and Louisiana.

BAASH-ROSS APPOINTS CLARK VICE PRESIDENT

The Baash-Ross Tool Co., Los Angeles, Calif., has appointed H. H. Clark, known as "Dick" to many oil men, as vice president in charge of sales. This

H. H. Clark

appointment follows three years as sales manager. Mr. Clark's connection with the oil industry began in 1913, following his graduation from Stanford University, in the old Mateo Street sales office of the Union Tool Co., before the erection of that company's Torrance plant. From this position he was transferred to the Carnegie, Pa., plant, where he remained five years as assistant treasurer and sales manager of the eastern division. Returning to California he resigned in November of 1926 to associate himself with Baash-Ross as sales manager.

Appointment of Erwin Burns as assistant general manager of Baash-Ross plant is announced at the same time by the company. Mr. Burns' career with Baash-Ross began in 1922, when the company's shops were still in Brea, and many of the most spectacular of California's oil fields were as yet undiscovered. Advancement has followed steadily and Mr. Burns' present direction of Baash-Ross plant activities in the various field shops and the main Los Angeles plant is based upon personal experience in practically every type of manufacturing operation in which the company is engaged.

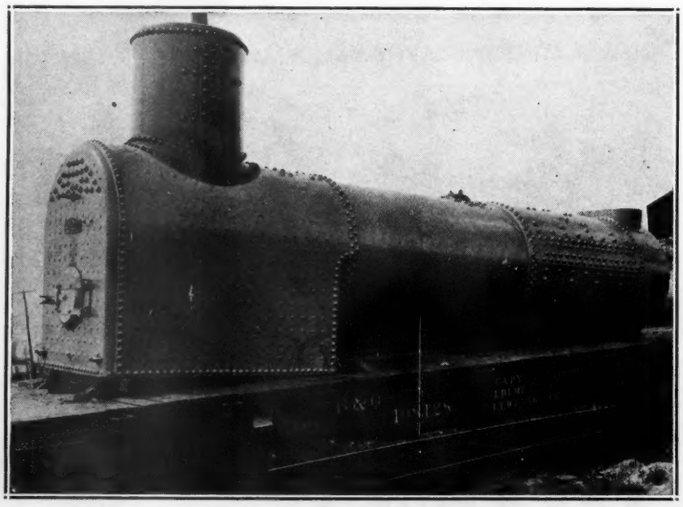
HANDY SCALES SET DESIGNED

A set of handy scales has been designed by W. A. Rounds of Fort Worth, Tex., that should be of interest to the engineer, geologist, scout and others who handle maps, especially maps where the old Spanish varas system of measurement has been used. The 12 scales are conveniently mounted and can be fanned out so that any one of the scales desired is exposed. On the back of each scale there is a useful table.

OPENS FORT WORTH BRANCH

The Maintenance Engineering Corp., Houston, Tex., has opened an office and branch warehouse in Fort Worth, Tex., in charge of M. A. Hart. The principal stocks carried in Fort Worth will consist of forged steel valves, fittings, flanges, tube-turns, cast-steel gate valves and cast-steel flanged fittings.

BIG BOILER IS DESIGNED FOR DEEP DRILLING NEEDS



The "Big Boiler," manufactured by the Donovan Boiler Works, Inc., Parkersburg, W. Va., is rated as 125 horsepower, built for 350 pounds steam working pressure, but with heating surface being taken, as including only the inside surfaces of the tubes and firebox it has 1,318 square feet, so that its actual horsepower, A.P.I. rating, would be 131.8. If the outside surfaces are considered the heating surface is 1,470 square feet.

This boiler is designed to meet the demand for greater power needed in deeper drilling and several are in service in the Oklahoma City Field. It is of the open-bottom type, similar to that embodied in present-day locomoatives. The mud ring is made of heavy bar 3 inches thick.

The firebox is 84 inches long inside, making it one of the longest ever used in an oil field boiler. It has 105 3-inch tubes 16 feet long. The dome is 40 inches in diameter, probably the largest ever used on an oil field boiler.

The reason for IDECO stability

Research, experiments, and years of usage in the oil fields of the world have combined to produce IDECO derricks of the highest possible working efficiency. Incorporating strength, rigidity, a minimum number of parts, a variety of sizes and weights for every type and class of drilling or pumping use, and performing all classes of work under the most severe conditions, IDECO Structural Steel Derricks are unequalled and have never been successfully imitated.

The Builders of IDECO derricks are steel men. They know steel, its possibilities and superiority. Years of actual experience in structural design are built into IDECO derricks.

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Export Offices—90 West Street, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, California. 504-B

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

OTHER MOVERS BESIDES GAS

Is it to be assumed that natural gas is always the one thing or even the chief thing in bringing oil from underground formations to the surface? From the number of articles that are written on this subject I take it to be the common opinion among engineers that gas is all that produces an oil well. I have heard of wells that flowed and that had hardly any gas. What are the facts about this? —O. T. S.

The propulsive force that will move oil through its reservoir may be gas or water or both. In fact even where there is a large amount of gas accompanying oil from a well under natural flowing conditions, water under hydrostatic head may be also one of the forces moving the oil to the well.

Where gas is limited the water surrounding the oil reservoir will probably be the medium that forces the oil out of the sand or limestone reservoir rock and if this water is allowed to exert its force without restraint it is possible for it to cut ahead of the oil and channel in such a way that it will enter the well and exclude the oil.

It is therefore recognized as good practice to produce the oil at only such rate as will permit the water to exert a steady and continuous pressure upon the oil body and in this way wash the sands of their oil contents thoroughly and produce all the oil possible by natural flow.

As the water approaches the hole there is usually noted an increase in the temperature of the oil as produced and this indication of temperature increase is carefully noted by good production men and the rate of production regulated to hold the oil back and keep the water from channeling into the hole and cutting off the oil production or at least materially reducing the amount of oil produced.

HAS SALT WATER PROBLEM

I wish to avail myself of your services in an effort to solve a salt water problem we have in our well. I enclose a chart of the well and give you herewith our conception of the difficulty encountered.

The well is drilled to a depth of 2,084 feet; 8¼-inch casing is set and cemented in 4-foot cap rock at this depth. There is a 7-foot oil sand immediately under the cap rock. We cored 14 feet below the oil sand in blue to brownish shale. The first core of 7 feet below the oil sand had a very slight showing or intermixture of sand which did not show any free oil, but had a petroleum odor. The last core in the shale showed almost no sand and the texture was firmer or harder. The two cores taken in the shale below the oil sand did not show any trace of water content.

After drilling out the cement plug and drilling into the oil sand 3 feet the rotary mud fluid was bailed out of the well and within a few minutes after the last bailer of fluid had been taken out the salt water broke through from the bottom of the core hole in the shale and in 12 hours it had risen to 1,000 feet in the casing, bringing with it during that time sand which showed 10 feet in the casing.

Our opinion is that the bottom of the core hole was just a short distance above the salt water horizon. We do not think it likely that any caving has taken place in the shale below the oil sand as the well or water has not been disturbed since breaking through.

Do you think we have a reasonable chance of making a successful water shutoff? If so, will you please advise the method of shutting off the water that you would recommend? Please note that in the event of our attempt being unsuccessful we would want to drill to a deeper sand with rotary drill, using fishtail bit.—L. H. M.

First it is desired to compliment you on the thorough way in which you have presented details of the condition at this well.

From your description it is believed that salt water has broken through the shale body into the oil sand above it and in all probability ruined that zone as an oil-producing sand.

It is possible, of course, that the cementing job has not been done satisfactorily, but ignoring that possibility, it is not likely that only 7 feet of hard shale at the bottom of the cored hole is enough to give a good shut-off if the salt water body below is under heavy hydrostatic head.

With a limited knowledge of formations in your district it is assumed possible to have fractures or channels through this shale that would permit the salt water to drain upward into the oil sand above, and when the pressure on this oil sand was relieved by the drilling in of this well this drainage upward started. Before that time all elements were in equilibrium and the presence of salt water in the oil sand was not noted when the core was taken.

Owing to the very thin sections penetrated below the 8¼-inch casing it is not considered that the chances for making a well in the oil sand are good and it therefor would seem that you should try first to underream the 8¼-inch casing and lower it to some casing point below the salt water zone and cement it there, using plenty of cement to effect a good water shutoff, or if this cannot be done, to reduce the hole and drill through this water formation and set a string of 6⅝-inch casing.

Lowering the 8¼-inch casing is preferable for it will leave you with a large hole for deeper exploration, but if this string is now cemented so that it cannot be lowered it can only be suggested that you reduce the hole and set another string of casing.

Your drawing shows these formations as lying horizontally but in actual field conditions it is likely that these strata will have some inclination and further they are not all of even thickness throughout the area covered. These conditions permit water movements and with the release of pressure in any one of the several formations penetrated it is probable that water will move upward into the oil sand.

It is hoped that these suggestions will prove of some practical benefit to you, but it is believed that your geologist might well pass upon this situation for he should have intimate knowledge of the structure.

WHY WAS IT CALLED THAT?

GROWLER-BOARD

In drilling the term "growler-board" refers to a board placed under a bit. In pipe line work it refers to a board placed under a jack. It seems probable that the word "growler" was prefixed because a sound not unlike the growl of an animal was produced when the piece of equipment resting on the board was moved or turned on it. Sometimes the term is shortened to "growler."

CONCERNING COST OF WELLS

If consistent with the rules of your information department, I would be glad if you would answer the following questions:

1. What was the total cost of the first well in the Muskegon, Michigan, Field?

2. What was the total cost of the first well in the Mount Pleasant, Michigan, Field?

3. For best results in wildcat territory, what size hole should be started if it is thought necessary to drill to a depth of 3,600 or 4,000 feet?

4. For a first-class job by a responsible driller what would be a fair minimum price for a 3,600-foot well in territory which has never been drilled, except for water, to a depth of 1,800 feet? —H. D. W.

This department does not have any cost data on wells drilled in the Michigan fields, but suggests that you write H. J. Lowe, production engineer, The Pure Oil Co., Chicago, who is handling the drilling matters for that company in the Michigan fields. He can probably supply you with information on costs there.

As you do not state where the proposed wildcat well is to be drilled it is impossible to give information about the casing needed for a 4,000-foot well. The amount of casing will vary with the number of water and gas sands encountered and until the well is drilled there is no way to determine where they are located or the trouble they may give. The surface string of casing would not be over 20 inches diameter, but even this is a guess, for it would depend upon the decision of the driller digging the well.

The fourth question about minimum price for a 3,600-foot well in wildcat territory is also a matter of adjustment with the driller. It is good practice, however, to select, not a cheap or low-priced operator, but one whom you can trust. It is usual to pay a certain rate per foot for the actual drilling of the well with a fixed charge for time required for underreaming, fishing, running casing, etc. These factors are unknown when the well is started and if the driller is required to make a flat price he naturally will protect himself.

If, on the other hand, you agree to pay him say $100 a day for all services other than the actual drilling of the well, and you select a reliable man, it will not be hard to make adjustment later and the operations will be under your control.

Let us assume that the 11-inch casing has been set and the hole reduced for the next string of 9-inch size casing. After drilling a short distance below the casing point for the 11-inch string a water sand is encountered. There are then two courses to pursue: lift the pipe and underream the hole to a new casing point below the water sand, or drill through this water sand with the 9-inch hole and set a string of that size pipe.

If the driller is interested only in making hole at the contract price per foot he probably will drill the 9-inch hole and run the extra string of casing at cost to you. On the other hand, if you have agreed to pay for his time at a reasonable rate for underreaming he will consult you and follow your wishes.

It therefore is advised that you engage the services of a reliable contractor and talk the matter over with him, and once you have decided to give him the work allow him to proceed without interference, but provide that he consult you about important details.

Before starting the well it might be advisable to consult with a geologist and get his advice on the general prospects of finding oil or gas, for while the geologist will not be able to tell you where these are to be found with certainty, he can tell you, in most cases, where they are most likely not to be found, and in this way save the cost of drilling unnecessary wells.

You might do well to get a copy of Walter H. Jeffery's book, "Deep Well Drilling," which gives many details of drilling wells.

BOOKS ON NATURAL GAS

I am engaged in a study of the natural gas industry and wish to go somewhat thoroughly into the underlying factors affecting the various fields, lines, conservation programs, etc. I have two years' back numbers of The Oil and Gas Journal from which we have obtained a large amount of information. It occurred to me, however, that you might suggest some publications, books, pamphlets or monographs covering the entire industry. —H. M. F.

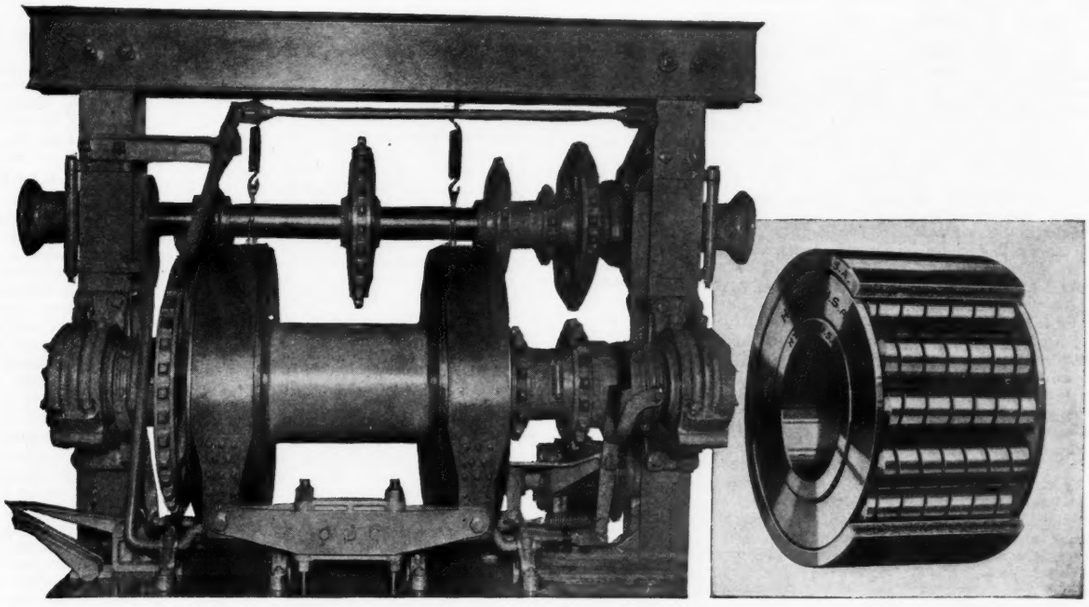
A copy of the Bureau of Mines list of publications has been sent to you. In it you will find the titles to bulletins and technical papers that the bureau's engineers have prepared. John C. Diehl's "Natural Gas Handbook," published by the Metric Meter Works, Erie, Pa., probably will give you about all the additional technical information that you desire.

The Kansas City Testing Laboratory, Kansas City, Mo., also issue a handbook on natural gas and allied subjects. This is known as Bulletin No. 25. There is a charge for it. John Wiley & Sons, Inc., New York City, publish L. C. Lichty's book, "Measurement, Compression and Transmission of Natural Gas," a technical work that sells for $7.50. There are other books, of course, but you can find in the books mentioned about everything that has practical bearing on the subject.

In drilling and pumping units, the ability of Hyatt Roller Bearings to deliver smooth, uninterrupted performance under the stress of heavy loads and steady demands has placed Hyatt in an enviable position of preference.

For, with free-running Hyatts, friction, wear and lubrication are minimized . . . shut downs for bearing repair are eliminated, adjustments are unnecessary, and speedier production is made possible.

Draw Works . . . Hyatt protected, by Titusville



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In draw works . . . as in blocks, rotaries, pumps, pumping units, and other important field equipment . . . Hyatts provide lasting bearing satisfaction, and permanent operating economy.

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ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

Natural Gas Developments

GAS STORAGE RESERVE APPROVED IN CANADA

CHATHAM, Ontario, June 14.—The federal government at Ottawa, with the approval of the Alberta provincial government, has undertaken to reserve for the Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary for 20 years the depleted sands of the Bow Island Field. The reserve is for the purpose of an attempt by the company to recharge the sands with waste and surplus gas from other fields, including principally the Turner Valley Field. An area of 19,440 acres, including 680 acres already under lease, is reserved. The experiment, if successful, will involve an expenditure by the company of around $500,000.

Conditions of the grant include submission by the company to the government before September 1, of full particulars regarding wells already drilled in the reserve area; as well as a complete description of the proposed recharging process. Before January 1, 1931, the company is to submit satisfactory evidence of the expenditure of $100,000 in closing abandoned wells and repairing and reconditioning wells to be utilized and in installing machinery and equipment for recharging the sands. Default in any of these requirements terminates the reservation.

Actual recharging of the sands is to commence not later than May 1, 1931, not less than 200,000,000 feet to be injected into the sands annually until the maximum pressure is reached and maintained. Meter records shall be kept of gas injected and pressure records, for each well; and a check kept on gas wastage.

The Bow Island Field was first developed about 1912 and for many years was used by the Canadian Western company to supply Calgary and intermediate points. It has become gradually exhausted, while the Turner Valley Field in which the company is also interested has developed an immense oversupply of gas.

MEDICINE HAT GAS RATES

CHATHAM, Ontario, June 14.—Alberta Public Utilities Commisison has withheld approvel of an application to authorize a bond issue of $100,000 by the city of Medicine Hat for the purpose of drilling three additional gas wells in the municipal field. The commission agreed to go into the matter further on submission of a financial statement, but urged that existing gas rates were far too low, suggesting a 10-cent rate to manufacturers and a 30-cent rate to domestic consumers. The 1929 gas surplus amounted to $112,000 and the commission suggested that this amount, less $25,000, to put into a gas extension fund for purpose of new development, and that $25,000 a year for three years, and thereafter $40,000 a year be set aside to cover maintenance and repairs.

FORM CLARION COMPANY

HARRISBURG, Pa., June 14.—The Berney-Bond Gas Co. of Clarion applied to the Public Service Commission for approval of its incorporation and permission to begin the exercise of rights to produce and sell natural gas to the glass plant at Clarion and to sell the surplus, if any, to public utility companies in Clarion and Jefferson Counties. The incorporators of the company, all of Clarion, are Ben F. Hazelton, Jr., F. P. Hazelton, C. S. Budd, S. M. Cosolowsky and I. W. Lesher.

The company was formed after the Berney-Bond Glass Co. sold its Clarion plant to a Toledo, Ohio, glass company.

MEDAL FOR GAS EMPLOYE

FORT WORTH, Tex., June 14.—Olan R. Paschall, painter of the Lone Star Gas Co., Dallas, was recently awarded the National Safety Council president's medal for successfully using the Schaeffer prone pressure method of artificial respiration June 9 upon E. H. Phillips, manager of the City Ice Co. station after the manager had been overcome by ammonia fumes while attempting to repair the ice making machinery. A. W. Breeland, safety director of the Lone Star Gas Co., had charge of the ceremony, and Ed. C. Selecman of the company's legal staff made the presentation, with D. L. Cobb, secretary-treasurer, and H. A. Jackson, assistant treasurer, present as company representatives.

CANADIAN GAS NEWS

CHATHAM, Ontario, June 14.—Northwestern Utilities, Ltd. has submitted to the Edmonton, Alberta, city council a proposed new rate schedule for natural gas which provides a domestic and commercial rate ranging from 40 cents to 18 cents, compared with the old schedules of 45 cents to 28 cents; while the new industrial rate of 28 cents to 18 cents compares with an old rate of 35 cents to 23 cents. In place of a prompt payment discount of 3 cents per 1,000 a 5 per cent discount is proposed.

Northwestern Utilities, Ltd. is continuing its drilling program in the Viking Field and its geological surveys, as well as duplication of its transmission line to the Viking Field. At the end of 1930 the company expects to have an open flow of 110,000,000 feet a day, with peak load of about one-third this amount.

Canadian Western Natural Gas Co. has completed its distributing system in Foremost, Alberta, and is installing services and connecting the new system with the main line.

An artesian well drilled on the Fletcher farm near Eureka, Alberta, encountered not merely water but gas at 880 feet. Gas is in sufficient quantities to be utilized for farm buildings.

INVESTIGATE MIGRATION

An investigation of the direction that natural gas migrates from injection wells is being conducted by engineers of the San Francisco field office of the United States Bureau of Mines, and some very interesting facts are being determined. From data collected it appears that gas migrates theoretically fan shape from the injection wells and that the angle of the fan depends upon the dip of the formation. In a level sand (90° dip) the gas migrates in all directions and the angle of the gas fan can be taken as 360°. If the formation stands on end, (0° dip) the gas theoretically should go straight up and the angle of the gas fan would be 0°. The data further show that the fan angle decreases as the slope of the formation increases. When the slope is about 30° the fan angle is about 100° and when the slope is 5° the fan angle is 190°. This information should be of real value in locating injection wells particularly in California, where many oil structures have steep slopes.

UNITED LIGHT-LONE STAR

PITTSBURGH, Pa., June 14.—Explaining that there exist close relations between the two companies in relation to gas properties, United Light & Power Corp. officials in Chicago deny that their company is taking over Lone Star Gas Corp. Officials state further that no negotiations for such an acquisition have been undertaken.

UNITED GAS CORP. PLAN TO INCREASE CAPITAL

United Gas Corp., the new natural gas subsidiary of Electric Power & Light Corp., has filed in Delaware an amendment to its certificate of incorporation increasing its authorized capitalization and is declaring operative the plan dated March 29, 1930, under which it is acquiring securities of United Gas Co. and of certain of its subsidiaries, of Louisiana Gas & Fuel Co., and of the Palmer Corp. of Louisiana.

Approval of the plan consolidates the ownership and operation of the extensive natural gas system in Texas and Louisiana, developed by Moody-Seagraves and G. E. Barrett & Co. interests, with the natural gas properties of Electric Power & Light Corp., and brings into the group the Texas and Louisiana natural gas system formerly owned by Magnolia Gas Co., a subsidiary of Standard Oil Co. of New York.

Electric Power & Light Corp. owns in the aggregate a majority of all of the voting stocks and option warrants, including substantially all of the $7 second preferred stock, of the new corporation. A share of the $7 second preferred stock, accompanied by three option warrants, may be converted at any time into three shares of the common stock of the new corporation. The Moody-Seagraves and G. E. Barrett & Co. interests, through exchanges of securities and by purchases have acquired a substantial interest in the common stock and option warrants of the new corporation. Electric Bond & Share Co., in addition to its 30 per cent interest in the common stock of Electric Power & Light Corp., by exchange under the plan or by purchase, has acquired a substantial interest in the common stock of the new corporation.

Electric Power & Light Corp. has delivered or caused to be delivered to United Gas Corp. 100 per cent of the securities and $3,468,000 of the loans payable of Louisiana Gas & Fuel. Electric Power & Light Corp. has in addition paid into the treasury of United States Gas Corp. $30,000,000 in cash, and has subscribed for 300,000 units of junior securities of United Gas Corp. at $100 unit, a total subscription of $30,000,000. These units are issued in the form of 20 per cent paid allotment certificates. The remaining 80 per cent of the subscription price may be called for payment, in whole or in part, by United Gas Corp. at any time on 30 days' notice, but the holders of the allotment certificates do not have the right to make additional payments unless and until they are so called.

United Gas Corp. has an authorized capitalization of 22,000,000 shares without par value, consisting of 1,000,000 shares of preferred stock, issuable in series, 1,000,000 shares of $7 second preferred stock and 20,000,000 shares of common stock.

Officers of United Gas Corp. include S. Z. Mitchell, chairman of the board; C. E. Groesbeck and O. R. Seagraves, vice chairman; O. R. Seagraves, chairman of the executive committee; Ralph B. Feagin, president; H. C. Abell, S. R. Inch, O. H. Simonds, N. C. McGowen, E. W. Hill and L. H. Parkhurst, vice presidents.

The board of directors includes H. C. Abell, Charles M. Clark, H. C. Couch, E. G. Diefenbach, Ralph B. Feagin, Charles V. Graham, N. C. McGowen, S. Z. Mitchell, O. R. Seagraves, O. H. Simonds and E. B. Tracy.

The properties will be operated under supervision of Electric Bond & Share Co.

Under the plan, United Gas Corp. has acquired 100 per cent of the securities of Louisiana Gas & Fuel Co., more than 92 per cent of the common stock, 85 per cent of the preferred stock and 100 per cent of the option warrants of United Gas Co. and substantial percentages of the preferred stocks, bonds and debentures of underlying companies which were subject to deposit.

This gives United Gas Corp. ownership, direct or through subsidiaries, of approximately the following percentages of the outstanding common stocks of the following principal subsidiaries of United Gas Co.: Houston Gulf Gas Co., 94 per cent; Dixie Gulf Gas Co., 97 per cent; Southern Gas Co., 90 per cent; Southern Gas Utilities, Inc., 99 per cent; South Texas Gas Co., 99 per cent, and Dixie Gas & Utilities Co., 81 per cent.

In addition, United Gas Corp. owns 100 per cent of the common stock of Louisiana Gas & Fuel Co. and directly or indirectly 100 per cent of the common stocks of the latter's subsidiaries, including the Palmer Corp. of Louisiana, Industrial Gas Co., Southern Gas & Fuel Co., Louisiana Gas Co., Panola Oil & Gas Co., Northern Louisiana Natural Gas Co., Ouachita Natural Gas Co. and Excelsior Pipe Line Co.

CANADA GAS PRODUCTION

CHATHAM, Ontario, June 14.—Official figures isued by the Dominion Bureau of Statistics at Ottawa place the natural gas production from all Canadian wells in March, 1930, at 3,016,480,000 feet. 11 per cent more than in March, 1929. New Brunswick and Ontario production showed little change, the increased output in Alberta accounting for the augmented total. The figures cover natural gas actually utilized.

ONTARIO LINE EXTENSION

CHATHAM, Ontario, June 14.—Union Natural Gas Co. of Chatham is unloading pipe for extension of its transmission lines from Oakdale, in Lambton County, to serve Florence, Bothwell and Thamesville. A 6-inch line will be laid to a point 3 miles south of Florence, from which two 4-inch high pressure lines will be run to Bothwell and Thamesville.

A.G.A. FELLOWSHIPS

The natural gas department of the American Gas Association announces that it has endowed two fellowships in natural gas research—one at the University of West Virginia and the other at Oklahoma University. The income allotted to each school will be applied as determined by a consultation between its faculty and the committee on supply men's fund, natural gas department.

Each year the school will submit lists of recommended students and the selection of the student or students to receive it will rest in the hands of the committee.

Whether such aid will be in the nature of an undergraduate loan or a post-graduate fellowship will depend upon the merits of the various cases submitted each year.

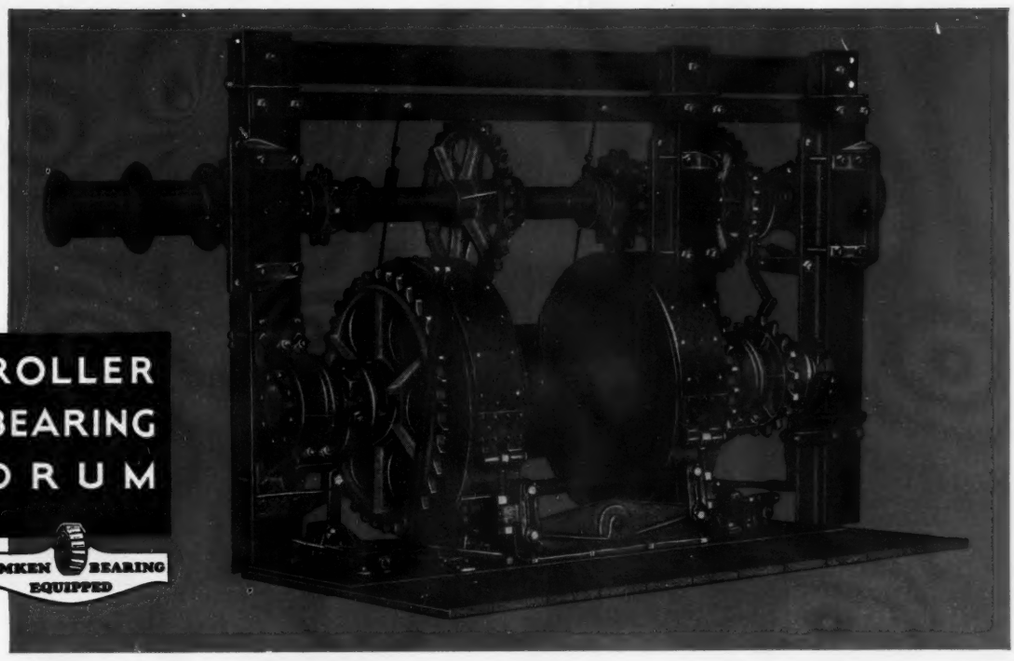
OKLAHOMA NATURAL GAS

Oklahoma Natural Gas Corp. reports gross earnings for 12 months ended April 30, 1930, of $11,041,482 comparing with $10,687,839 in preceding 12 months. Net after expenses, maintenance and taxes was $4,770,304, against $4,415,640.

GAS MEN REPRESENTED

At the World Power Conference which opened at Berlin, Germany, June 16, the American Gas Association was represented by three delegates—A. M. Apmann and J. S. S. Richardson of New York, and C. J. Ramsburg, of Pittsburgh.

NOW „ A NEW LUCEY EXTRA HEAVY THREE SPEED DRAW WORKS „ TYPE B-1700



Timken heavy duty roller bearing drum shaft mounted in self-aligning bearing boxes.

Lucey patented unit construction drum center and shaft positively prevents drum center working loose.

Lucey patented free expanding brake flanges reinforced to prevent spreading.

Improved braking mechanism affords added efficiency and simplicity of adjustment.

Spacer template facilitates erection and rigidly aligns and ties together jack posts.

LUCEY
"WHEREVER THERE'S OIL"

Floor plate on which all clutch shifting and braking mechanism is mounted eliminates possibility of misadjustment.

Luceloy clutches and sprockets minimize wear.

Double cathead on driller's side, affording more clearance and greater safety. All catheads are *Luceloy*.

Post Guards equipped with SKF self-aligning ball bearings, insure against binding of the roller.

8″ forged steel drum shaft—heat treated.

7″ forged steel line shaft—heat treated.

LUCEY PRODUCTS CORPORATION

DOMESTIC HEADQUARTERS
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BRANCHES
OKLAHOMA CITY, OK. DUNCAN, OKLA. MAUD, OKLA. SHREVEPORT, LA. HOUSTON, TEXAS LOS ANGELES, CALIF.

EXPORT
3505 WOOLWORTH BUILDING, NEW YORK CITY
54 OLD BROAD STREET, LONDON, E. C. 2, ENGLAND
55 RUE DE RIVOLI (1.ER) PARIS, FRANCE
PLOESTI, ROUMANIA
SAN FERNANDO, TRINIDAD, B. W. I.

With the Men in the Different Oil Fields

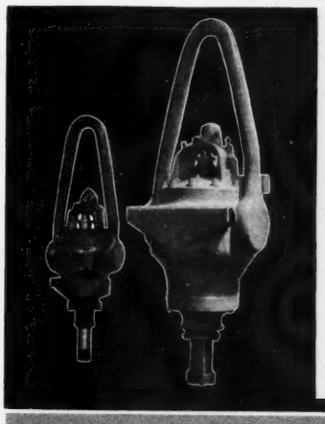
(1) Left to right: W. S. Lemley, driller, and Keith James, tool dresser, Indian Territory Illuminating Oil Co., Oklahoma City. Mr. Lemley started in the oil field in West Virginia 24 years ago. (2) E. E. Stovall, Lone Star Gas Co., Dallas Texas. (3) N. N. Plummer, operator; G. M. Fuller, oiler; J. R. Gaddy, engineer, and John Hilderbrant, chief engineer, Drumright Station, Prairie Pipe Line Co. (4) H. H. Smedley, superintendent, H. H. Cross Co.'s refining plant in the Muskegon Field. (5) John Rogers, Ingersoll-Rand Co., New York City. (6) Empire Gas & Fuel Co., Oil Hill, Kans., machine shop group. Back row: C. W. Guffin, Omar Hicks, Carl Lear and H. F. Seefelds. Front row; Lloyd G. Campbell, J. A. Davis, L. C. Scott and J. W. Milam, foreman machine shop. (7) Paul Eighmey, E. F. Peyton and Sam Blankenship, foreman material yard, Empire Gas & Fuel Co., Oil Hill, Kans. (8) Charles Halsell, West Texas representative, Murray Tool & Supply Co. (9) C. M. Copeland, superintendent, R. M. Dannenberg and D. B. Newlin, Conar Oil Company, Tonkawa, Okla.

RESERVE STRENGTH

SAFETY FACTOR AT LEAST 4 TO 1

SPECIALLY designed extra large main bearing (an exclusive Emsco feature). This type of bearing has proven superior to any other swivel bearing. Heavily reinforced body insures rigidity of bearing support essential to positive alignment of bearing assembly and even load distribution on all cone rollers. Load capacity far beyond its rated strength . . built to withstand all drilling shocks and strains.

GENERAL SPECIFICATIONS: Height over all 11' - 2¼", width across gudgeons 38", diameter of gudgeons 7½", diameter of bail 4½" to 5", Main Bearing diameter 24", upper thrust bearing-Timken Cone Roller Bearing, sleeve bearing-American Roller Bearing, 3" fluid passage, oil capacity 50 gallons, recommended working load 150 tons, total weight 6525 lbs.



Compare the new 150-T with the Emsco Type B-6" Swivel (shown together at left) to appreciate its size. The enormous rotating weight which must be supported in modern drilling, necessitates the large bearing and heavy reinforced housing.

EMSCO DERRICK & EQUIPMENT COMPANY
Main Office and Plant
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Mid-Continent Distributors
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General Offices: St. Louis

Canadian Distributor
THE CONTINENTAL SUPPLY COMPANY, LTD.
224 Traders Building, Calgary, Alberta, Canada

Export Office
CONTINENTAL EMSCO COMPANY, INC.
74 Trinity Place, New York City

London Office:
316-17 Dashwood House, Old Broad St., E. C. 2

EMSCO D+B Protected by Steel EQUIPMENT LOS ANGELES, CALIFORNIA HOUSTON, TEXAS; DALLAS, TEXAS EXPORT OFFICE: 74 TRINITY PLACE NEW YORK CITY, N. Y. THE EMSCO ENGINEERING CO., LTD. LONDON, ENG. U.S.A.

EMSCO TYPE 150-T SWIVEL

All Emsco and D+B Products (Except Derricks) Sold Exclusively in Mid-Continent Fields by The Continental Supply Company

EMSCO STEEL EQUIPPED WELLS ARE SAFE

MEN KNOWN IN OILDOM

I. N. Randall

I. N. Randall, assistant to the president of the Richfield Oil Company of California, was born in Drytown, Calif., February 16, 1889. He entered business life with the Great Northern Railway Company in Seattle, Wash., changing to the Southern Pacific Railroad in 1907, as private secretary to the chief engineer in San Francisco. In 1908 he joined the traffic department of the Chicago & Northwestern Railway Company in San Francisco, where he remained until 1911, when he became general manager of the Ocean Shore Railroad Company, with headquarters in San Francisco.

In 1917 Mr. Randall took charge of the distribution of refrigerator cars for perishable foodstuffs, working with the United States Food Administrator, United States Railroad Administration and the United States Bureau of Markets. His initial headquarters were in Washington but he subsequently moved to New York, Chicago and San Francisco, remaining with the Government until 1920. In May of that year he went with the Union Pacific System as general agent of its refrigerator car service, with headquarters in Omaha, Neb.

When the Richfield Oil Company decided to open a district office in San Francisco Mr. Randall was selected as district manager in September, 1925. Under his management Richfield sales in the San Francisco district increased tremendously. In 1929 the work of C. M. Fuller, president of Richfield, became so heavy as to require an assistant. Mr. Randall was chosen for the post and he moved to the company's headquarters in Los Angeles.

PERSONAL PARAGRAPHS

A. S. Mims of San Angelo, Tex., is now living in San Antonio and is operating in that territory.

* * *

C. M. O'Leary of the Halliburton Co., Duncan, Okla., spent several days in Shreveport, La., territory during the week.

* * *

Fred P. Shayes, with headquarters at Beeville, Tex., for the Houston Oil Co., has been transferred to the Houston office.

* * *

Alex Lewis of Taylor, Tex., has been staying in San Antonio while arranging to operate in the Balcones Fault territory.

* * *

R. L. Clark and John Bishop of the Strong, Carlisle & Hammond Co. of Cleveland, Ohio, are making a tour of the Mid-Continent oil fields. Mr. Bishop will act as the Mid-Continent representative for the Strong, Carlisle & Hammond Co.

F. K. Foster, district geologist for Sinclair Oil & Gas Co., San Angelo, Tex., and Mrs. Foster are vacationing in California.

* * *

E. C. R. Weisgerber, president, Hydrocarbon Apparatus, Inc., Los Angeles, Calif., visited the Mid-Continent area last week.

* * *

J. R. Mercer of Amarillo, Tex., has been looking around in Southwest Texas and more especially in the eastern part of Kendall County.

* * *

David B. Reger of Morgantown, W. Va., has resigned as associate geologist of the West Virginia Geological Survey, effective August 31.

* * *

Gordan Ingalls, operating in Smackover for the past several years, has transferred headquarters from El Dorado, Ark., to Fort Worth, Tex.

* * *

Frank P. Sterling, vice president of the Humble Oil & Refining Co., Houston, Texas, has left with his family to spend the summer in Colorado.

* * *

D. F. Tracksell and Edward F. Barton of the Peerless Investment Co. of California have recently been in Southwest Texas looking over property.

* * *

Underwood Nazro, vice president of the Gulf Production Co., Houston, Texas, is making a business trip to Pittsburgh, Pa., and other eastern points.

* * *

John Carter and Harry Randall, each of Fort Worth, Tex., were recently visitors to San Antonio. Mr. Randall is vice president of the Mid-Sun Oil Co.

* * *

Carl Cromwell of West Texas commutes by airplane between West Texas and San Antonio territory. He has become interested in the Pettus area.

* * *

H. E. Pontius, sales manager of the Ohio Central Steel Co. of Newton Falls, Ohio, was a Tulsa visitor during the week, spending a few days with his brother.

* * *

C. C. Clark, district geologist for the Shell Petroleum Corp. at Shreveport, La., for the past six years, is now with the Louisiana Gas & Fuel Co. at Shreveport.

* * *

W. A. McKenna, formerly in the statistical department of the Gulf Production Co. at Houston, Tex., has been transferred to the San Antonio office of the company.

* * *

Oscar Renaud, scout for The Texas Company in south Arkansas territory since the days of the El Dorado boom, has been transferred to Shreveport, La., headquarters.

* * *

H. M. Staggs, chief production engineer of the Atlantic Oil Producing Co., has been appointed chairman of the Texas district sub-committee on wire rope and manila cordage.

* * *

C. T. Beckwith, formerly with the Indian Territory Illuminating Oil Co. in Oklahoma, now consulting geologist in California, is making a visit and business trip in Fort Worth, Tex.

* * *

D. G. Barnett, geologist with Geo. F. Getty Petroleum Corp., at Fort Worth, Tex., has been sent to San Antonio by the company. At one time he was with the Dixie Oil Co. at San Antonio.

* * *

James T. Cain, Houston, Texas, president of the Duval Texas Sulphur Co., which is affiliated with the United Gas Co. and other Moody-Seagraves interests, is in New York City on business.

* * *

J. B. Dunbar of Fort Worth, Tex., associated with A. H. Wray and R. C. Martin in various operations, has recently been in San Antonio and is arranging to operate from that center along the Balcones Fault.

* * *

W. O. West, Bureau of Mines instructor in first aid work of the bureau's Birmingham, Ala., headquarters, is devoting three weeks to a course of instruction for the Louisiana Oil Refining Corp.'s crews at the Bossier City and Gas Center refineries. From Shreveport he will go to Haynesville and Cotton Valley for a week of instructing Ohio Oil Co. crews in those two fields.

S. M. Tatum of Miami, Fla., an oil operator, has been spending a great deal of time in the San Antonio, Tex., territory.

* * *

Charles L. McMahon, oil producer, of Tulsa, has received the honorary degree of doctor of laws by St. Bonaventure College of Allegany, N. Y. The presentation of the degree was made on Tuesday, June 10.

* * *

E. H. Cunningham-Craig of London, England, arrived in Calgary recently for his annual visit to the Alberta fields in the interests of Canadian and British companies with which he is connected as geologist.

* * *

Charles E. Meyer, of the Oil Well Supply Company, has been delegated to open a new Chicago office for his company, and has left Muskegon with his family. Mr. Meyer has been in charge of sales for the company in Michigan for two years.

* * *

N. S. Lonabaugh, for a number of years with the Oil Well Supply Company, and later an officer in the Longhart Supply Company, has been recommended for the position of manager of the newly formed oil and gas bureau of the Fort Worth, Tex., Chamber of Commerce.

* * *

W. Polje, formerly of Tulsa, has joined the Louisiana Oil Refining Corp. at Shreveport, La., as advertising manager. Prior to establishing himself at Tulsa he had been advertising manager for Skelly Oil Co., Tide Water Oil Sales Corp. of New York, and in similar capacities for other enterprises.

* * *

Dr. A. Wade Schwitalla, head of the crude oil purchasing department of the Shell Petroleum Corp., and R. P. Bascom, vice president in charge of pipe lines with the same company, with headquarters in St. Louis, Mo., spent a few days in Texas and the Dallas office of the company.

* * *

J. C. Nicklos has been appointed assistant to G. H. McIntyre, production superintendent, in charge of the Fort Worth, Tex., office of the Continental Oil Co., and is taking up his new duties at once. Mr. Nicklos was formerly general superintendent of the northern New Mexico division for the old Continental Oil Co.

* * *

Guiseppe Faccioli, widely known electrical engineer, has retired from active participation in the affairs of the General Electric Co. because of ill health. Mr. Faccioli has relinquished his duties as Pittsfield works engineer and associate manager of the Pittsfield works of the company and assumed the position of consulting engineer.

* * *

M. J. Flanagan, vice president of the Gaso Burner Manufacturing Co., and Mrs. Flanagan and John E. Flanagan of the land department of The Texas Company and Mrs. Flanagan left Tulsa on June 11 for New York where they will embark for Europe. They plan on visiting the Irish Free State, England and a number of continental countries.

* * *

W. G. Woolnough, Australian geologist, sent to the United States by the Australian government to study the oil situation, accompanied Sidney Powers, chief geologist of the Amerada Petroleum Corp., Tulsa, to West Texas where they joined geologists of the West Texas Geological Society on a field trip to the Marathon Basin in Brewster County.

* * *

H. J. Larrick, for the past 12 years representing the Star Drilling Machine Co. in the Mid-Continent, and the past six years in charge of the company's branch at Wichita Falls, Tex., has resigned and will enjoy a summer's vacation on the western coast, returning in the fall to engage in the manufacture of oil field specialties. Mr. Larrick is widely known throughout the Mid-Continent and Rocky Mountain districts.

* * *

J. S. Ross, for the past two years petroleum engineer for the United States Bureau of Mines at Shreveport, La., has tendered his resignation to the government effective June 15, to accept a position as engineer for the Southern States Co. of Shreveport. Mr. Ross will have a roving commission and will develop a statistical department and assist in engineering details for Southern States Co. in the Mid-Continent oil field areas.

for the fabricators who use ARC WELDING

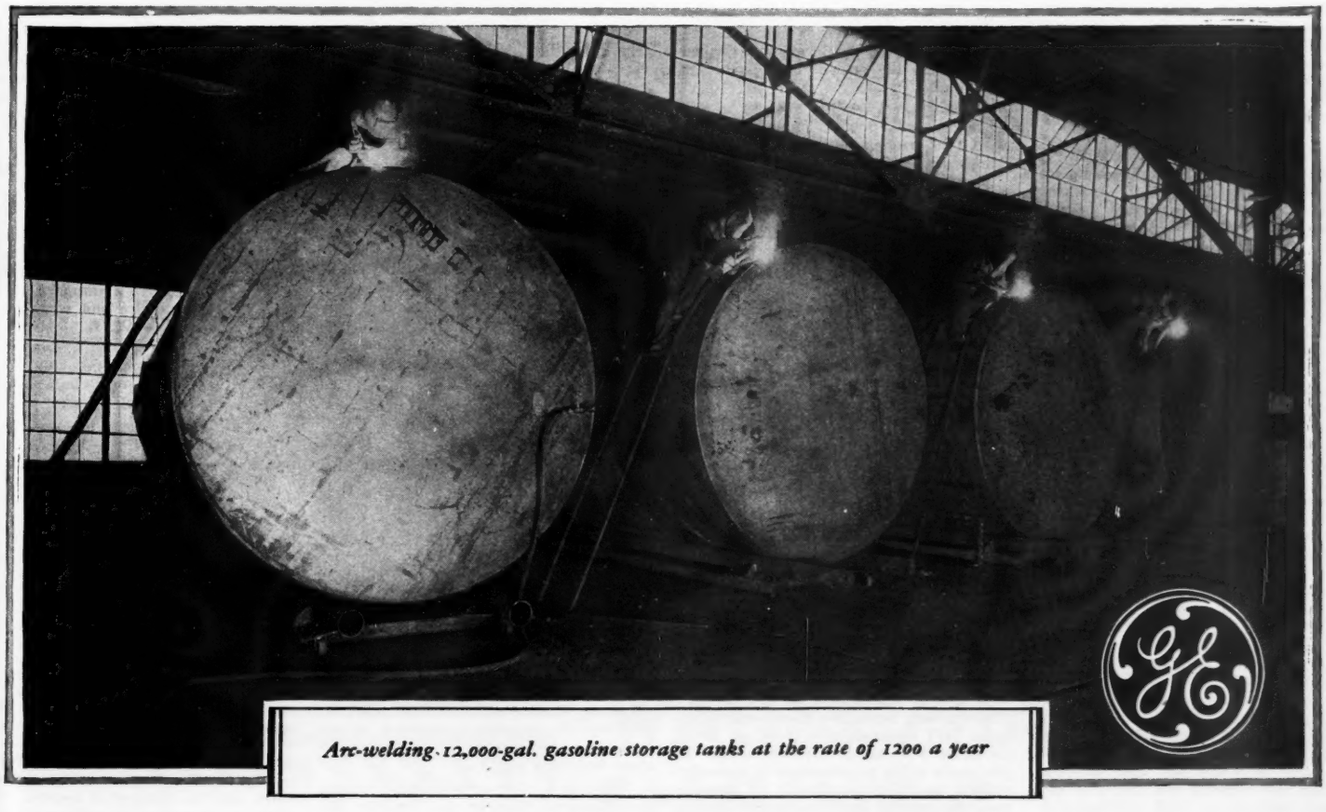
CONSIDER the Standard Steel Works of Kansas City, Mo.—arc-welding practically its entire output of equipment. Business is booming. It is one of the busiest fabricating plants, for its size, in the country.

Why? Because the trade is demanding arc-welded equipment; equipment whose joints are leak-proof and stronger than the parent metal itself; equipment that is lighter, stronger, safer, and simpler.

Last year this fabricator arc-welded 1200 bulk oil-storage tanks and over 300 tar-heating kettles—a production which will be exceeded in 1930. Between 1,000 and 1,250 truck tanks and dump bodies will be arc-welded in the current year. In addition, arc welding forms the basis of construction of a large miscellaneous jobbing business.

Aiding in this program, are eleven modern and thoroughly dependable G-E arc-welding sets—and a welding engineering service promptly available in the nearest G-E sales office.

Forward-looking steel fabricators throughout the country are invited to investigate General Electric's complete arc-welding equipment and engineering facilities. Simply telephone or write your nearest G-E office.



Arc-welding 12,000-gal. gasoline storage tanks at the rate of 1200 a year

530-85A

ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

BENZOL ANTIKNOCK MOTOR FUEL

Will you explain what is the present trend of the use of benzol as an antiknock material in gasoline? Is there a wide demand for it? Is it a fact that it is used to a larger extent in Europe than in the United States? What is the source of benzol?—C. H. W.

The importance of foreign markets for benzol, the fourth largest single-commodity chemical export of the United States, is evident from the fact that over a fourth of the 1929 output was sold abroad. Exports advanced 56 per cent whereas the estimated gain in domestic production was slight. Exports during the first four months of this year were more than double the figures for the corresponding period of the preceding year, according to the Department of Commerce.

Domestic consumption also has grown materially in recent years, and in 1929 imports more than doubled over the previous year—thus partially compensating for the larger proportion of exported production. The widening of markets at home and abroad has been in consequence of the increased use of benzol as a motor-fuel constituent and its larger employment in the synthesis of a number of organic chemical compounds.

Benzol is obtained from the light-oil fraction in the distillation of coal tar. Upon further fractionation a partly refined benzol is produced, a large proportion of which is marketed as "motor fuel benzol." Pure benzol obtained from the crude benzol upon subsequent fractionation and purification, is the starting point in the preparation of a number of important coal-tar intermediates, some of which are used directly; although the majority are converted into finished derivatives, such as dyes, explosives, plastics, medicinals, perfumes, flavors and photographic and tanning materials.

The total 1929 United States production of benzol for all purposes has been estimated at 128,300,000 gallons; and, although the relative proportions of the two classifications have not been ascertained, it may be conservatively estimated that at least 85 per cent enters the fuel field. The larger ascendency of motor benzol is not peculiar to the United States, but is of world-wide scope, as regards both production and consumption.

The following data for exports during the first four months of 1930 compared with the corresponding period of 1929 point to the conclusion that the consuming area for American benzol lies in western Europe and the United Kingdom. Figures are in thousands:

	1929		1st. four months	
Country—	Quan. gals.	Val.	1929 quan. gals.	1930 quan. gals.
United Kingdom	9,251	$2,507	1,034	4,770
Germany	17,828	4,460	4,247	5,512
Netherlands	1,922	423	....	3,577
Belgium	1,194	334	155	216
France	1,326	344	298	424
Italy	1,030	215	374	313
Argentina	169	60	94	22
Cuba	82	16	50	29
Canada	34	14	23	4
Chile	45	16	12	3
Other	465	148	30	103
Total	33,346	$8,537	6.317	14.973

In a number of the Latin-American nations, notably Argentina, Cuba and Brazil, motor fuels with an alcohol base (derived from molasses) and containing benzol as an essential constituent are being developed. These efforts are prompted by a desire for a carburant of national origin, cheaper than gasoline—which is sold in these countries at prices somewhat higher than in the United States—and, particularly, by a desire to avoid overproduction in the sugar industry.

The production of and the growing demand for an alcohol motor fuel in Latin-America, obviously would affect a decided expansion in the present benzol markets in this area.

German benzol requirements far exceed the home production. The German Benzol Cartel calculated that 130,900,000 gallons would be consumed in 1928 by automotive vehicles. The demand for this one purpose is greater than domestic production, which was estimated to have totaled 94,000,000 gallons in 1929.

During the first quarter of 1930, Germany imported 17,900,000 gallons of coal tar oils, including benzol, sumol, toluol and xylol worth $5,231,954—a two-fold increase over the corresponding 1929 receipts. In both periods the United States supplied about half of these imports; in the first quarter of 1930, for instance, it accounted for 9,346,000 gallons of the total imports. The value, which is not given in the official statistics, should approximate $2,700,000.

DISTILLING IN BUBBLE TOWER

What is the effect of feeding a mixture to the proper deck, composition of feed and feed-plate are identical, of a bubble tower but at a temperature 200° F. higher than the average temperature of the tower, assuming no decomposition, etc.? As an example, in shell still operation, a reduced crude is transferred at 600° from a still to a kerosene tower the top of which is maintained at 400-410° F. The runback from this tower enters another still maintained at 550° in order to effect a complete kerosene strip. If the result is the acquirements of excessive reflux, should an exchanger be used to cool the reduced crude to approximately 400° F.?—J. A. J.

The practice of introducing an oil into a fractionating tower may be explained as being for one or two purposes. It is usually the matter of introducing a hot oil so that the distillation may be prolonged with the consequent more thorough separation of the lighter from the heavier particles. The principle is similar to that of the reboiler section in the bottom of the tower or of the reboiler unit that is so frequently placed adjacent to a dephlegmating tower. Sometimes the oil is added in this way to accomplish refluxing when it is necessary to regulate the supply of oil entering the top of the tower.

It is recognized that a series of cuts from a given fraction and the blending of these cuts will in many cases give a product of better composition than when the product is produced by a single flash. There is usually obtained a product of closer boiling range and therefore less contamination through entrainment.

Too much reflux added will be reflected in the character of the stream or streams by the lower color; also the heavy portions of the distillation range are especially influenced by this condition. Effective fractionation depends both on repeated distillation of the condensed portions and a series of condensations. At any moment there will be a residue at one extreme and a distillate at the other; in between there may be a series of residual products from the previous distillations from the lower plates.

Continuous distillation requires constant conditions with respect to composition of the charge, rate of feed, heat and cooling. Upset any one of these and, if not quickly adjusted, a shutdown must follow.

It appears that in the conditions of the question that the hot oil is added to prolong the distillation. The quantity to be added must be controlled by other conditions, so if there is an excess, an exchanger would appear to be advisable.

A.S.T.M. STANDARD METHODS PETROLEUM PRODUCTS

What is considered to be the better authority for the methods used when determining the quality of petroleum products, some government bureau or a scientific society? Are the testing methods used in the petroleum industry in the United States recognized in foreign countries?—R. T. A.

A committee of the American Society for Testing Materials, Philadelphia, known as Committee D-2, is responsible for the details of the testing methods used at the present time in the petroleum industry. This committee includes representatives from several branches of the federal Government, consumers of petroleum products, refiners and others interested in the quality of the products that are derived from crude oil. Most of the testing methods that appear in government publications pertaining to petroleum are those that have been developed by A.S.T.M. Committee D-2.

It is the purpose of Committee D-2 to prepare the directions for making the tests in such detail that there is no option as to procedure; consequently several persons when examining aliquots of the material should have no difficulty in obtaining similar results. The A.S.T.M. methods are commonly accepted as reliable for the purpose of settling questions involving quality.

There is a close relationship between the American Society for Testing Materials and the interested societies in England, France and Germany. Many of the A.S.T.M. methods are in common use in the countries mentioned and there is an increasing tendency toward uniform methods through co-operation with the Institution of Petroleum Technologists in England, several similar organizations in Germany; also there is unquestioned appreciation of the work of D-2 Committee wherever petroleum products are known.

CRACKING UNITS DIFFERENT TYPES

Please advise if there is a book published containing flow sheets, yields with various stocks, hook-ups, etc., of the different types of cracking units?—C.J.C.

The progress of the cracking art is indicated in the numerous articles on the subject that appear in The Oil and Gas Journal. It would be impossible to furnish a complete list of these that have been published since cracking became important. A few references may be mentioned and these have been selected at random.

Type—	Date	Page
Burton	1924—11/20	94
Knox	1924— 7/17	104
Cross	1924— 8/28	92
Dubbs	1924—11/13	100
Cross	1925— 2/26	109
Jenkins	1925— 2/26	100
Ormont	1925—11/19	74
Holmes-Manley	1926— 5/20	194
Holmes-Manley	1926— 3/11	120
Leamon	1926— 7/ 8	138
de Florez	1927—12/29	277
Dubbs	1928—10/18	255
Gyro	1929— 4/25	46
de Florez	1929—12/ 5	132

Many cracking processes are described, with patent numbers, in some detail by Leslie, Motor Fuels, Chapter 9, Page 328. This book was published in 1923, so the processes mentioned are the ones that were well known at that time. It should be noted that today most of the cracking processes do not stand on the claims of the original patent, but the owners control numerous other patents.

BUTANE AND BUTANE-AIR MIXTURES

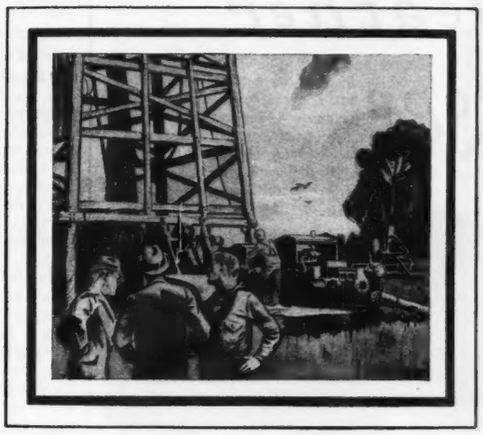
What are the properties of butane such as weight, heating value, specific gravity, etc., from which dilution values may be calculated? Is there a standard air mixture for town service and what are the explosive hazards—W. R.

The constants of butane at 60° F. and normal pressure of one atmosphere are shown in the table following:

Formula	C_4H_{10}
Molecular weight	58
Normal condition	gas
Boiling point °F.	33.1
Melting point	—211
Specific gravity (air=1)	2.068
(water=1 at 32° F.)	.60
Cu. ft. per lb. of liquid	6.515
Weight per gal. at 32° F. lbs.	4.998
Cu. ft. per gal.	32.56
B.t.u. per cu. ft.	3,274
B.t.u. per pound	21,827
Critical temperature	303
Critical pressure lbs. abs./sq. in.	552
Specific heat at constant volume	0.539
Specific heat at constant pressure	0.587
Vapor pressure lbs./sq. in. at 30° F.	14.1

The use of butane-air mixtures for small towns is not regulated by standard practice but there is a tendency to adopt the limits set in many places where artificial gas is available. This is 500 B.t.u. per foot; but of course a higher heating value may be obtained if desired. Some units are reporting air mixtures containing from 80 to 85 per cent, or approximately 550 to 650 B.t.u. per cubic foot.

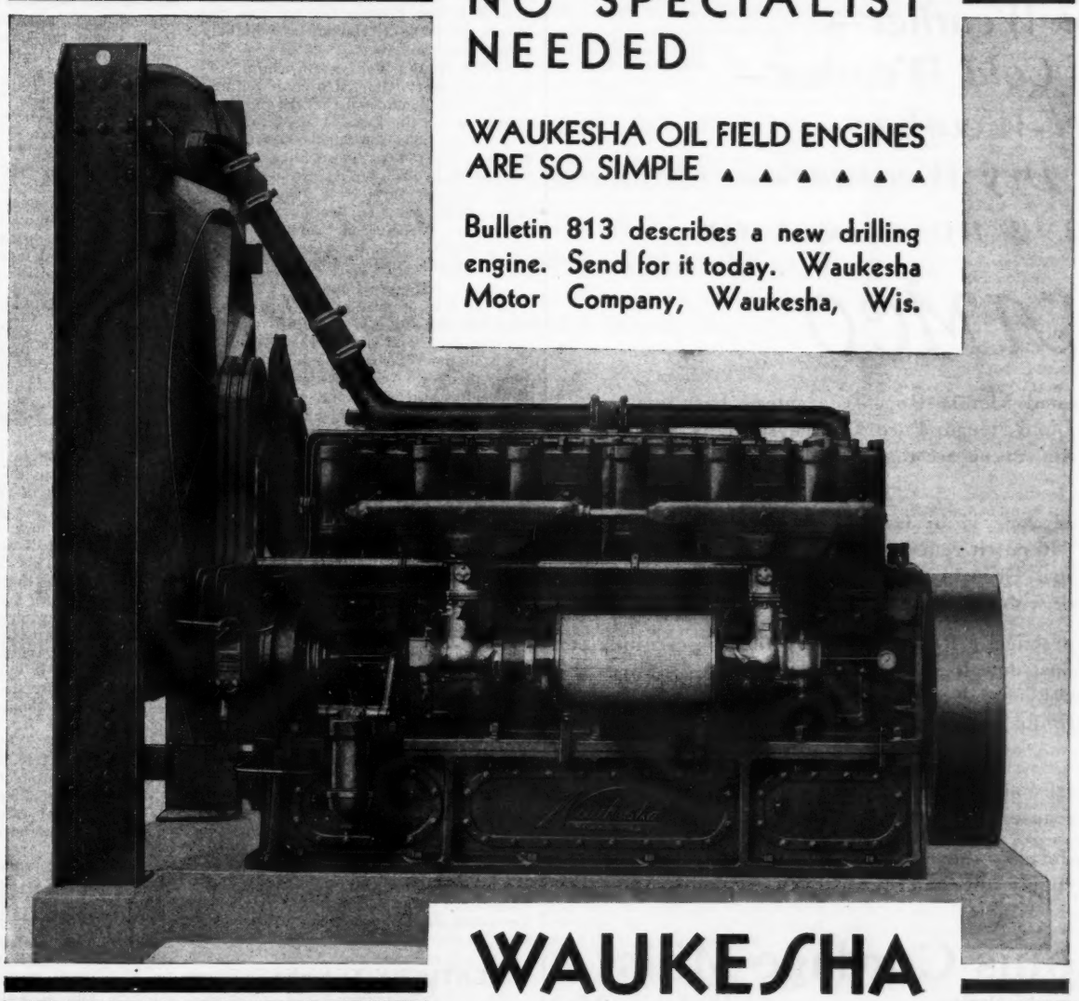
There are no unusual explosive hazards involved in connection with butane-air mixtures. The dangerous mixtures, similar to the other hydrocarbons, are confined to quite narrow limits; the lower limit is an air mixture containing 2 per cent butane and the upper limit is one with about 6.6 per cent butane.



NO SPECIALIST NEEDED

WAUKESHA OIL FIELD ENGINES ARE SO SIMPLE ▲ ▲ ▲ ▲ ▲ ▲

Bulletin 813 describes a new drilling engine. Send for it today. Waukesha Motor Company, Waukesha, Wis.



WAUKESHA ENGINES ..

The "All-Weather" Rope

Hot Weather—
Cold Weather—
Wet Weather—
Dry Weather—
have no effect on

"AMCO"

Specially Treated Manila Rope—guaranteed best quality. Made only of long, tough, Pure Manila, specially selected to withstand the severe use that Oil Field Cordage is subjected to.

This improved rope is in fact as in name, the "ALL-WEATHER" Rope; it remains pliable under the most adverse conditions. Even in wet, freezing weather "AMCO" is easy to work with; no rope like it.

"AMCO" is practically Rot-proof; every fibre is carefully processed against deterioration prior to the time the yarns are spun, thereby reducing to a minimum the chances of serious damage due to dry-rot, etc. It is the *safest* rope for all purposes.

"AMCO" weighs no more than ordinary rope. It is more economical because it lasts longer.

"AMCO" conforms to all requirements of A.P.I. specifications. If your supply store can't furnish you, write direct to—

St. Louis Cordage Mills

Eleventh and Soulard Sts. St. Louis, Mo.

Branch of

AMERICAN MANUFACTURING COMPANY

Noble and West Streets Brooklyn, N. Y.

Tulsa Representative:

SAM REDIC, 2220 E. Seventh St.

Write for List of Distributors

"AMCO"— The "All-Weather" Rope

EASTERN FIELDS

(Continued from Page 70)

on the L. M. Bryan farm is a 35-bbl. producer.

Muskingum County

Muskingum County has more test work starting than any other in Southeast Ohio. Palmer & Gisinger have rig up on the Harber Slack farm. In Perry Township the Ohio Fuel Gas Co. has rig completed on the Edmon Allen farm. In the same township the Preston Oil Co. has rigged up on the John C. Heeks farm. In Union Township, Longfellow & Co. are due in the sand on the L. B. Jackson farm. The Atha Oil Co. is drilling on the John Pitts and Redward Redmond farms. In the same township the Wehrle Co. is drilling on the L. and N. Geyer farm. All are test wells.

In Section 22, Liberty Township, Guernsey County, J. T. Watson & Co. have a flood of salt water on the W. G. Watson farm. In Wheeling Township the East Ohio Producing & Refining Co. has rig timbers at a location on the Amanda M. Gray farm. The same company has made two locations on the B. A. and May J. Quillin farm. The Kemrow Co. has made a location on the J. W. Fowler farm. In Sections 3 and 7, Cambridge Township, the Preston Oil Co. has rigs up on the Isaac J. Oldham and Mahala Johnson farms.

In Lot 37, Washington Township, Tuscarawas County, Ohio, George Jewell and others have completed in the Niagara lime a test on the Leonida Meek farm. It is a gasser good for 2,000,000 feet. In Section 9, Perry Township, Licking County, M. F. Whitehill's No. 14 on the Alice Ashcraft farm is a 5-bbl. pumper in the Berea grit. In Section 8, Palmer Township, Washington County, C. S. Nixon & Co.'s No. 9 on the Willis C. Ellis farm is a duster in the Peeker sand.

Morgan County

In the NW of Section 28, York Township, Morgan County, the Pure Oil Co. has completed and shot in the Berea grit No. 8 on the Wilbert Bush farm. It is a 5-bbl. pumper. Near Albany, Alexander Township, Athens County, Paek Bowser and others have completed a test on the Frederick Cooley farm. It is a duster in the same formation.

In the SE of Section 23, Nawton Township, Muskingum County, the Hydraulic Pressed Brick Co. has completed a test on its own property. It is a duster in the Clinton sand.

In the SE of Section 7, Perry Township, Muskingum County, the Ohio Fuel Gas Co. has completed a test on the J. L. and B. Suttor farm. It is a light gasser in the Clinton sand. In the SW of Section 15, Richland Township, the Wehrle Co. has completed in the same formation a fair gasser on the C. H. Hardy farm. In the SE of Section 6, Enoch Township, Noble County, a local company has completed in the Buell Run sand a test on the Frank Webber farm. It is a very light pumper.

SOUTHWEST PENNSYLVANIA

In Springhill Township, Greene County, the Caseman Oil & Gas Co. has the rig completed for a second test on the Margaret Caseman farm. In Center Township, George Drake & Co. are fishing on the Dean Piatt farm. In Perry Township, J. B. Nuss & Co. are building a rig on the David Lemley farm.

KENTUCKY-TENNESSEE

(Continued from Page 70)

reported showing around 500,000 feet of gas.

Daviess County

In the Maxwell Pool, Daviess County, Hupp, Duff and others' No. 2 Widow Noel farm, is reported showing for 50 bbls. initial, while No. 3, same farm, rated at 40 bbls. initial. In the Red Hill area, Dr. Sirman found an excellent gas well on the Atherton farm.

Johnson, Young and others' No. 4 B. Mackey farm is reported good for 25 bbls. the first 24 hours run. Huff, Bratton and others' No. 1 on the Ford heirs farm, failed to find a commercial pay at a total depth of 750 feet.

Ohio Oil Co. failed to find a pay sand in No. 1 on the D. Rice farm, and it has been abandoned as a dry hole.

McLean County

On the Whittaker farm, in the Grindstone Hill area, the Olean Petroleum Co.'s Nos. 1 and 2 proved to be dusters according to report, but No. 3 is rated at 10 bbls. initial under pump. White Plains Oil & Gas Co.'s test on the Leachman farm, west of Calhoun is reported a duster.

Warren County

Homer Julian and others' test, 200 feet from the south line and 1,200 feet from the east line of the M. Reeves 250-acre lease, 5 miles northwest of Bowling Green, in Warren County, is reported doing 2 bbls. in 12 hours at a depth of 503 feet. K. M. Wright's No. 6 on the J. C. Davenport No. 1 farm, 2 miles northwest of Bowling Green, was dry at a total depth of 910 feet.

Field Pickups

Henry Meister has installed a drilling outfit on the Crabtree farm, west of the Grindstone Hill Field in McLean County, for parties from Alabama, who will do some test work. Baker and others are reported to have a dry hole on the George Ray farm, in the Haynesville area of Ohio County, adjoining the Scott Huff farm, where the Louisville Gas & Electric Co. found a fair oil producer reported at 15 bbls.

Wood Oil Co. is drilling No. 4 on the I. L. Wallace farm, and H. C. Smith Co. is drilling No. 2 Isaac Findlay farm, in Ohio County. J. A. Ford and others are drilling No. 1 on the J. H. Haynes farm.

In Daviess County, Jones Pool, Hunt & Crow are drilling No. 5 J. R. Walker farm. Ashby and others are drilling No. 2 Lenus Howard farm. Johnson, Young and others are drilling No. 5 B. Mackey farm. Vickers and others are drilling No. 1 on the Mose Mason farm, southeast of the Burton Pool. Evans & Garrison are drilling No. 5 on the J. M. Clark south 90 acres, in the Utica Pool.

Hupp, Duff and others are drilling Nos. 2, 3 and 4 on the W. G. Hayden No. 2 farm, in the Maxwell Field of Daviess County.

In a hunt for gas a well was drilled on a town lot in the Fordsville area in the eastern part of Ohio County, but indications of oil, not gas, were found and it may mean a new oil pool and a town lot development if the well lives up to its showing. This is the first venture within the town limits, but the town is almost surrounded by oil wells, and could hardly prove dry territory.

Active change of leases in the vicinity of Habit in Daviess County makes it look as though it will be an active area brought about by the good well recently drilled by the Johnson Oil & Refining Co. on the E. R. Eaty farm. Many nearby leases have brought an unusually good price per acre, and is several miles in advance of production. The new well is on a block of 3,000 acres and the initial venture was rated at 100 bbls. This is about 5 miles northeast of the Jones Pool.

SUN OIL PICNIC

FORT WORTH, Tex., June 14.—The Sun Oil Co., Dallas, held its twelfth annual picnic at Kidd Springs on June 10. Field men from all over the state attended and J. Edgar Pew, first vice president of the company, made a trip from Philadelphia to enjoy himself with the employes. There were about 500 present.

EMPIRE P. L. STATEMENT

The runs, shipments and stocks of crude oil of the Empire Companies, reported by the Empire Pipe Line Co. for May were as follows: Pipe line receipts, 2,101,870.51 bbls.; daily average, 67,802 bbls.; deliveries, 2,165,970.75 bbls.; daily average, 69,870 bbls.; stocks May 31, 5,942,065.47 bbls.

ALL CAME TO SEE TRIANGLE NO. 1 SHOT

(Continued from Page 40)

ment of our local oil territory kept back a good while yet. But it can't be did."

Throngs visited the well. Among exciting incidents was this, described by the Reporter:

"On Sunday the grounds around the Triangle well were crowded with visitors, even to some kid-glove gentry, afraid of tanning or spoiling their complexion. Two of the latter passing the point where the valuable colt of William Bellamy was hitched, became frightened by a move of the colt, dropped their 'sun shade,' and the wind taking it into the face of the colt, caused a runaway fearful to behold, demolishing the carriage among the stumps and seriously injuring the colt. Fortunately, no persons were injured."

"Local public opinion, which has been excited against Mr. Taylor, has undergone a strong reaction within a few days," one clipping reports.

The Reporter takes this roseate view of the outlook:

"The importance of this test and its results to Wellsville cannot easily be computed. In the event of success this village must be the substantial center or base of operations, and the long season of dull times and duller prospects will speedily give way to the rush and flush of oil operations."

The big day came, June 13. The Triangle No. 1 was to be shot, and Wellsville would know definitely whether Mr. Taylor's hole in the ground was the precursor of spectacular expansion for the village. In their reports of the historic event the Wellsville newspapers threw self-restraint to the winds. Using the biggest type it could squeeze into the narrow newspaper column, the Reporter in its issue of June 19 shouted:

OIL

Got 'er!

THE TRIANGLE PROVES A GOOD FLOWING WELL!

THE TEST NOT YET COMPLETE!

But Success Assured!

She's Oil Right!

TEN BARRELS A DAY PROVED AND TEN MORE LIABLE TO FOLLOW!

Wellsville Village on the Belt and No End to the Glory!

INTERESTING PARTICULARS!

The Democrat's emotion was no less fervid. Its headline eruption took this form on June 20:

OIL! OIL!

THE TRIANGLE TRIUMPH

A FLOWING WELL!

2 BARRELS IN 12 MINUTES!

THE QUANTITY INCREASING

TAYLOR "TAKES THE CAKE" AND

Is Entitled to All Praise!

GRIT WINS AT LAST!

LET US SHAKE!

Following this parade of exclamation points the Democrat presented the following account of the shooting of the Triangle No. 1:

"We have furnished our readers, from week to week, with a full report of the progress of the Triangle well—the sands, at what depth found, their thickness and the general indications for and against the success of the enterprise, up to the time of our paper's going to press last week Thursday noon. As the time for torpedoing the well drew near the interest of the public developed into intense excitement, and many of our citizens hardly mentioned their hopes and fears above a whisper, so eager were they for the success of this grand undertaking, which is to so materially affect the future prosperity of our village.

"The exact hour at which the torpedo was to be exploded was not generally known, and early Thursday morning, teams loaded with eager and excited people filed out of our village toward the scene of interest, until our streets were nearly depopulated. Arriving upon the ground one gazed about and beheld people from Scio, Willing, Belmont and in fact nearly every town in the county was represented, and all were on the qui vive, and expectant.

"The arrangements for the interesting operation of 'shooting' were not perfected until 12 o'clock noon, when a crowd of people gathered about the derrick, which might with propriety be termed a host. Taylor, a man of much pluck, was there, of course, confident and happy. There were also representatives from Bradford, old oil operators, who were there to see and judge for themselves, and we may well state right here, that they were thoroughly satisfied and made every effort possible to procure leases.

"At 12 o'clock—sharp—the first shell or torpedo, containing 20 quarts of that terrible explosive, nitroglycerin, was lowered into the well, to a depth of 1,109 feet, where was found the first gas and oil-bearing sand. Only a small quantity of oil and salt water was in the hole at this time. At the proper moment, the 'go devil,' a small piece of iron was dropped into the well, the concussion of which with the torpedo, exploded the charge.

Anxious Moments

"Some seconds elapsed, which seemed quarter hours to the anxious ones around the derrick, when a slight report was heard, accompanied by a perceptible shaking of the earth in that vicinity, and a volume of oil, salt water, pieces of sandrock, etc., were thrown many feet above the top of the derrick. There could be no possible doubt but what the work was well done, but it was deemed best to repeat the operation lower down, but with a smaller charge—8 quarts. When this torpedo was lowered there were over 200 feet of oil in the hole.

"After the second explosion the crowd expected a tremendous flow of grease, and were somewhat disappointed when the well was found to be clogged with debris to such an extent that nothing but the gas could escape. Several hours were consumed in cleaning out the well and when that was accomplished there were about 800 feet of oil in the hole.

"The man who did the torpedoing, hastened to the depot and flashed back to Bradford: 'TRIANGLE WELL GOOD FOR TWENTY-FIVE BARRELS!' He expressed the opinion, and seemed confident, while on the ground that 30 bbls. would be its lowest capacity.

"Friday, ineffectual efforts were made to pump the well and it was found necessary to pull the sucker rods and start the casing, when all at once and to the surprise of all, away she went, clear over the top of the derrick—A FLOWING WELL. It was estimated that 10 bbls. of oil were thrown out during this period of its activity.

"She was very quiet over Saturday, and until Sunday morning at 4 o'clock when another flow occurred, and at one time during Sunday forenoon, she gushed at the rate of 2 bbls. in less than 12 minutes.

"In spite of the inclemency of the weather, many people visited the well on Sunday, and there saw evidence of the truth of what they had heard — many claiming, upon their return to the village, that half had not been told.

"Monday the well was inactive, there being no flow of oil and but little gas. All sorts of stories and surmises, were current on our streets, and some hot headed ones allowed their mouths to run away with their brains, but the cooler chaps proposed to wait for developments. Tuesday morning she broke out afresh, like a small boy with the itch, and 12 bbls. was the result of her labors. The periods of activity becoming more frequent, and the quantity of oil increasing until the barrels provided for saving it were all full, when it had to be shut off or the oil allowed to waste on the ground. The cover was not again removed until Wednesday afternoon. At this time the gas had accumulated such force that when the cap was raised the oil spurted above the top of the derrick, and then settled right down to business, and convinced all who were present that this well was good for 20 bbls. per day at the very least.

"Columns might be written on this subject, which our readers would peruse with interest, but we have given the plain ungarnished facts that the readers of the Democrat may know just what the prospects are for a paying oil territory being opened up in this vicinity.

"We cannot close this article without giving O. P. Taylor, the hero of the hour, the credit and praise he so deservedly merits. The Triangle — rightly named 'Taylor's Triumph' — is, as our readers well know, Mr. T's third effort to discover paying oil territory in the vicinity of Wellsville. His struggle with almost unsurmountable difficulties while putting down the Pikeville and Wycoff wells; his pluck and the indomitable energy displayed by him, is well known to, but not appreciated, by our citizens.

Taylor Under Suspicion

"When work was first begun on the Triangle well, Mr. Taylor was looked upon as an agent of a Bradford oil company, and a fit subject to receive the tender mercies of a ruthless mob. He received no encouragement in his enterprise except from the newspapers, Capt. H. A. Coats, James Thornton and one or two others whom we might name. Many others contributed curses, and did all in their power to discourage and retard his movements. During his struggle with these manifold difficulties, and when his battle with the circumstances surrounding him was the fiercest, he was offered—so we have been informed by disinterested parties—a large sum of money for control of the well for a short time. He spurned the offer. He now stands before his fellow citizens, a man who can meet and overcome difficulties, and relieved of all suspicion as to his having put down wells to procure leases and then shut them off to retard developments. Everybody has a word to say in his praise and he deserves it all and more—long may he live to enjoy his triumph and its fruits.

LATEST FROM THE SEAT OF OPERATIONS

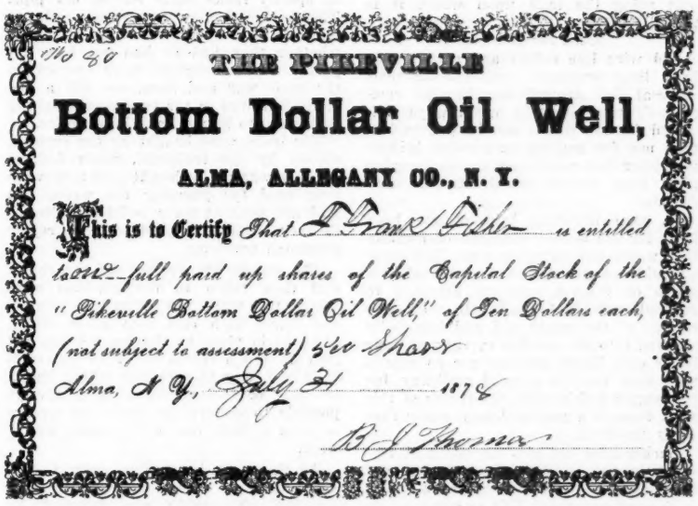
"Just as we go to press, Thursday, word reaches us that the well is flowing finely—eclipsing all previous performances. Everybody is happy, even the editor is happy."

Greater Wellsville Seemed Imminent

Greater Wellsville seemed just at hand now to the Reporter, which declared in its issue of June 19:

"There is little doubt that the village of Wellsville lies directly over a seething pool of the precious oil. . . . There has dawned with the proving of the Triangle well the reasonable probability that a new and doubtless rich oil field is about to be opened, of which Wellsville must of necessity be the natural outlet and base of operations, precisely as Bradford is to the McKean County oil fields." The Reporter cautioned against the "disorder and disaster" likely to attend sudden change "from a place of modest pretensions to the importance of a bustling, noisy, crowded city."

Bradford assumed a disdainful and derisive air upon receiving the news from Wellsville, a Bradford newspaper delivering itself thus: "Information as reliable as could be obtained yesterday from those who have visited the 'Wellsville wildcat venture' points to the conclusion already reached in the minds of those who


No 90
THE PIKEVILLE
Bottom Dollar Oil Well,
ALMA, ALLEGANY CO., N. Y.
This is to Certify That
is entitled
full paid up shares of the Capital Stock of the
"Pikeville Bottom Dollar Oil Well," of Ten Dollars each,
(not subject to assessment)
Alma, N. Y.,
1874
B. J. Thomas

This stock certificate shows a common method of financing early oil enterprises. The Bottom Dollar well was one of several promoted by B. J. Thomas, signer of the certificate. Mr. Thomas had worked as a drilling contractor in the "lower oil country," as New Yorkers called the Pennsylvania fields, and for a time in the early wildcatting ventures in Allegany County, New York, he had the only string of tools in that area. He drilled dry holes with such regularity that he became known as "Dry Hole Ben."

understand such projects that it will make an insignificant pumper of 2 to 5 bbls. capacity. The torpedo agent who administered the glycerin physic thinks it will be 20 bbls. This conflict of opinion cannot positively be harmonized, but the trade will naturally associate their opinions with those of veteran operators who visited the pretense that has caused so much unnecessary alarm throughout southern New York."

Wellsville squirmed under these taunts, especially the allusion to the Taylor well as "the pretense." It retorted in kind, continuing to proclaim its faith in Allegany County as the site of another great oil field.

History has demonstrated that this faith was not without justification, notwithstanding the fact that the Triangle No. 1 failed to meet the expectations of its promoters and Wellsville fell short of becoming a "bustling, noisy, crowded city." The Triangle No. 1, center of so much excitement and acrimonious controversy, settled down to the production of 3 to 5 bbls. of high-grade oil. Triangle No. 2, on the same lot, was rated at 5 bbls. a day. Not until Triangle No. 3, on Lot 4, Alma Township, was brought in on July 4, 1880, did Mr. Taylor find himself on the highway to success and the critics begin to take Allegany County seriously as an oil area. No. 3 filled a 250-bbl. tank in the first 16 days. In the same year H. K. McBride put down a well on Lot 18, Alma Township, that began flowing through the casing at the rate of 25 bbls. a day.

Then Came Richburg

Then came Richburg, 6 miles west of Mr. Taylor's wells, in 1881. The rest is familiar history. Up to the first of May, 1881, 34 wells had been drilled in the Allegany County Field. Twenty-two of these were dry. The total production of the field was only about 100 bbls. a day. From this time on, however, the field was developed rapidly and at the close of the year there were more than 500 wells in the district, with a production of almost 8,000 bbls. a day. In July, 1882, the production of the Allegany County Field was close to 25,000 bbls. a day.

Similar in general character to the Bradford Field, the Allegany Field, made up of a group of small pools, became an important spot in the oil regions of the East. Even when a well's yield fell to a fraction of a barrel, it remained profitable, for the oil was of high gravity and rich in lubricating quality. As in the Bradford area, renewed life has been injected into the Allegany Field through the introduction of flooding operations. The Ebenezer Oil Co., made up of Wellsville men, was among the first to experiment with flooding around Wellsville, and the results it accomplished on the old Riley Allen farm were remarkable.

As indicating the extent to which these flooding operations have enhanced the value of old oil properties, the Wyvell lease of 44 acres in South Alma might be cited. The farm had five producing wells when in 1927 the property passed into the hands of Gorton Brothers for a consideration of about $5,000. Each of these five wells was doing less than an eighth of a barrel a day. Because of the expected increase in production from flooding operations the Gorton Brothers sold the property recently for $44,000.

Largely as a result of the increased crude production from flooding in the Allegany and Bradford areas the Wellsville plant of the Sinclair Refining Co. recently underwent improvements costing about $3,000,000. This refinery was established early in the present century by the Wellsville Refining Co.

It's a Fine Town Anyway

Although Wellsville failed to realize its nineteenth century dream of becoming a more or less tumultuous oil metropolis, it did not sulk. Prosperity, if not spectacular growth, has attended the town. Its 6,000 population of the present time is made up in great part of men identified in one way or another with the nearby oil fields now undergoing rejuvenation.

O. P. Taylor, "Father of the Allegany Field," developed the historic Triangle lease and operated it till his death in Wellsville November 17, 1883. His son, William E. Taylor, operated it for years after that.

Many oil men whose names are familiar to hundreds scattered throughout the world sprang from the early Allegany County operations. William Duke and Henry and Lucius Norton, under the firm name of Duke & Norton, drilled up acreage around Pikeville and White Hill. George F. Wyvell, veteran of the Allegany Field, is today a retired oil man of Okmulgee, Okla. His brother, the late Charles M. Wyvell, was a pioneer operator in the South Alma Field. Charles Wyvell's son, Manton M. Wyvell, is president of the Gotham Oil & Gas Co. of Washington, D. C. Manton Wyvell's sister, Miss Bessie M. Wyvell, is manager of the Gotham's Tulsa office. She was postmistress of Wellsville from 1914 to 1923.

Harry Breckenridge and Jim Macken were extensive producers in the Allegany area. Jim Thornton opened up the Ford's Brook Pool near Wellsville. Riley Allen was for years the largest producer in the Allentown Pool. The Empire Gas & Fuel Co. was established by E. C. Bradley and J. B. Bradley, brothers, both dead. The company now is principally owned by Harry Bradley of Wellsville, son of E. C. Bradley, and his cousin, George Bradley, son of J. B. Bradley.

MATERIALS FROM OLD OIL FIELDS MADE USABLE

(Continued from Page 80)

and this has made the portable steel type better adapted to this purpose for it is quickly moved and can be reclaimed intact if it is decided for any reason to quit using the tank upon which it is placed.

Used for Bridges

Old wire line cables and sucker rods have long presented problems on their disposal but around the Empire companies' properties they are always welcomed for the cables can be put to further use for making suspension bridges for either foot passengers or for carrying pipe lines across small streams and ravines.

In some instances bridges have been built for the double purposes of forming foot walks and carrying pipe. The pipes are laid in parallel lines and carried in a series of wooden supports attached to vertical rods that hook into wire line clamps at the upper end and into bolts screwed into the wooden carriers at their lower end. These carriers are so spaced that they provide a good walkway for passengers and beneath the treads of this walk there is a pair of heavy cables that carry the load.

Sucker rods are now becoming of real value in the building of structures out of concrete and nearly a carload a month is shipped out of Oil Hill to other points where new company work is under way. The rods are usually damaged by worn boxes and pins or are actually broken in use but no matter what their condition may be they are carefully saved and sent to Oil Hill where they are sorted and those that can be reconditioned and used again as rods for pumping are worked over. Those that have no further use as rods for wells are piled in gondola cars and shipped to places where company work is underway, as requisitions are received.

Sucker Rods as Reinforcement

A good example of sucker rod reinforcement is given in the community swimming pool at Oil Hill where a mat of these rods was laid on the bottom of the hole excavated for this pool and the concrete poured over it. This pool is 100 feet in diameter and 11 feet deep in the lowest part with sloping bottom to a depth of 2 feet near the edge. The deepest part is not in the exact center of the pool and this affords a larger area at one segment of the circle for a wading pool for the kiddies, for they are always thought of first in all camp activities around the Empire companies' various community and lease settlements.

The pool at Oil Hill was constructed with material furnished by the company and the work was done by volunteer labor of the men of the Doherty Men's Club.

In the pool there is a diving platform over the deep portion and around the edge are placed benches made with pipe frames and wooden seats. The whole is enclosed by a wire fence that is supported on posts made from old pipe set in concrete.

To go a step farther and make as much as possible of this pleasure resort out of old material the bath houses and pump house was made out of old material from buildings discarded for other purposes and the pumps used to handle the water into the pool are also old ones that have been reworked. The water all passes through a modern filter made with sand, charcoal and alum filter medium and all water is carefully analysed at stated intervals by the water laboratory maintained at Oil Hill.

The water as it enters the pool is aerated by flowing out of a drum-like device upon each end of which is painted the Doherty Men's Club emblem. The deep part of the pool is marked by redwood floats but they were made out of new wood, Mr. Leonard stated in a tone of regret.

Handling Wheels

During the days of active drilling and producing a great many gas and steam engines were purchased and as the wells were depleted and put on powers these engines were hauled into the machine shops for overhauling and in this way hundreds of them were made available for use in other fields as well as many for resale.

The handling of the frames and fly wheels separately presented problems finally solved by racking the flywheels in special racks made out of old pipe. The engine bodies were then easy to stack or place on platforms depending on whether they had or had not been repaired. Steam engines were treated in the same way and there are still a few of the old ones in the yard now awaiting their turn to be put back into service.

Rig irons were bought by the carload, almost by the trainload, when drilling activity was at its height and they were long used for pumping the wells, and still are used at some isolated wells, so to keep them in a good state of repair presented problems.

The cranks are pressed off the shafts and then taken to the machine shop where the wrist pin holes are rebored and fitted with cast iron liners which are held in place by flowing welding rod iron around a recess left between crank body and liner at each side of the crank. By this method of repair it is always possible to remove the liner and replace it with a new one if it shows undue wear.

As these rig iron parts come to the yards they are racked on specially constructed pipe racks and handled by cranes from truck to rack and from rack to the hydraulic press used in pressing the cranks off and on the shafts. This press is out in the open in the yard.

Old jack post boxes are brought in and the old babbitt removed and they are then cleaned and re-babbitted and put in condition for further use. And "further use" does not necessarily mean on top of a jack post where they were originally intended to be used, but may mean to form bearings for any shaft of the proper size any place.

The bandwheel flanges are also used for many purposes other than those for which they were designed, such as pivot points for swings in rod lines and similar uses.

Electric motors are being used for drilling in some fields by the Empire companies and they built a set of countershafts that consists of three pulleys mounted upon a 5-inch shaft that is in turn carried in old back jack boxes mounted upon wooden blocks. The whole is portable and mounted upon a wooden frame.

The motors are of the 15/30 horsepower rating reversing type and two belts run to the countershaft, one from each motor. The smaller pulley is the driving pulley to the bandwheel. On the ends of these wooden pulleys old bandwheel flanges are used, with rods running through the wooden cores. The old bandwheels are reworked and then stored upon special pipe racks to keep them off the ground and also to facilitate handling from and to trucks.

Jack posts and samson posts are made out of old pipe set in concrete and braced with smaller size pipes front and back.

The above covers only a part of the materials reclaimed at the Oil Hill shops as practically nothing is considered waste there until it has been so worn as to preclude the possibilities of further use without too much costs in reconditioning.

Salvaging Small Parts

Old bolts are delivered to a special department where they are first treated in a chemical bath to remove oil and grease as well as dirt and rust and then rethreaded as necessary. Many other small parts such as valves and pipe line saddles are also cleaned and reconditioned in this department and before they are put back into use are given a water test so that they are not only made fit for further use but are known to be strong enough for the purpose intended. All such small parts are repainted, and this also applies to larger parts for the use of plenty of paint is believed a good economy in this reconditioning work.

Old copper wire is also reclaimed and gathered together and when lots of about 500 pounds are on hand it is sold as old copper. Babbitt metal is also gathered into larger lots and sold whenever an excess is on hand.

Corrugated iron from old houses is also reworked and wood from old buildings brought in and sorted and the good portions again used. Nails are about the only part of old buildings that are not considered worthy of salvaging.

This covers in part what is being done with material other than tubular goods by the Empires companies' construction department at Oil Hill and, judging from what was observed there, it seems safe to say there are as many other items being made there as have been mentioned.

It is a great game and a very profitable one but it does not require a large force of workmen to play it as they are organized at Oil Hill for the storage yard is handled by a crew of three men and there are about eight workmen in the machine, blacksmith and welding shops. But they are all experts at their particular line of work and guided by the genius of Mr. Leonard they are making a record for themselves and a saving for their employers that will be well worth copying by all companies, large and small, in the oil industry for it is said quite truly "a dollar saved is a dollar earned."

What this department is doing with old pipe is another story and it will appear soon.

FUTURE BY-PRODUCTS OF NATURAL GASOLINE

(Continued from Page 79)

propane, butane or propane-butane mixtures, for enrichment purposes in the carburization of water gas for city distribution. The cracking of gas oil for gas enrichment results in formation of tar mists which entail more expense to recover from the mains than the value of the recovered products, and this expense is entirely eliminated by the use of propane-butane mixtures. Consumers of gas enriched in this fashion have not complained of the quality of the gas, and in these cases it has been definitely proven that where enricher gasoline costs the same as gas oil, substantial economies result.

Liquefied Gas

Another development has been tried out in two small Indiana towns where a mixture of air with propane-butane vapor has been made the successful basis for city gas supply. This system of supply has been worked out to the point that there is no inherent technical difficulty in making a safe mixture for utilization in household or industrial plant gas appliances.

In finding markets for these liquefied petroleum gases, the natural gasoline industry is taking advantage of natural economic benefits possessed by liquid fuels as far as storage, transportation

and handling are concerned; while at the same time supplying a material which has all the advantages of a gaseous fuel in use. At the present time the more progressive manufacturers are in the liquefied petroleum field as testified by over 34 different brands of "bottled gas" on the market.

The chief use of this bottled gas is as domestic fuel in districts not now having gas service. Such use is a valuable ally to gas companies as outlying districts can be serviced, and held against encroachment by electricity or other fuels, pending gas main extensions. The popularity of these liquefied fuels is further shown by the fact that bottled gas service is now available to over 100 towns in California alone which are not served with either natural or artifical gas.

Even industrially these fuels are a recognized threat to all other fuels. They are today being furnished in tank-car lots for firing ceramic and annealing furnaces on account of the distinct advantage of being free from sulphur. For the same reason they are being used in place of blue-water gas and oil for heating steel, such as forge welding and drop forging. Likewise they are used in reduction of ores. At present these liquefied products are being offered by certain petroleum refiners at prices which compare favorably in cost per 1,000,000 B.t.u. with any other fuel source of anything like comparable efficiency of use. It is a question, therefore, as to whether these liquefied vapors will ultimately find their principal market among industrial plant users or as enrichers in city gas industry. The result, apparently, is going to depend on type of gas rate schedules established for industrial users of city gas quite as much as on any other single factor.

Refrigerants

These same liquefied products, propane, iso-butane and normal butane, or combinations of the three, are suitable also for service as refrigerants. The use of propane, for example will permit attainment of temperatures much lower than is possible with ammonia, and indeed almost any range of refrigerating effect is obtainable by selection of proper hydrocarbon refrigerant. Just how propane and butane compare with other already accepted refrigerants is shown in the following table:

Refrigerant—	Thermal potential of saturated vapor @ 5° F. B.t.u.	Thermal potential of liquid @ 86° F. B.t.u.	Net refrigeration per pound of refrigerant, B.t.u.	Specific volume of saturated vapor at 5° F. cu. ft.	Piston displacement per ton per minute cu. ft.	Pressure @ 5° F. lbs. sq. in. abs.	Pressure @ 86° F. lbs. sq. in. abs.	Piston displacement per ton per min. with that for CO_2 taken as unity
Ammonia (NH_3)	613.3	138.8	474.4	8.15	3.44	34.3	169.3	4.3
Carbon dioxide (CO_2)	101.0	36.5	64.5	0.258	0.80	32.9	1045.0	1.0
Ethyl chloride (C_2H_5CL)	163.5	21.0	142.5	16.18	22.70	4.5	27.4	28.35
Methyl chloride (CH_3CL)	171.1	27.7	143.3	4.65	6.49	21.0	95.5	8.11
Butane (C_4H_{10})	165.4	16.0	149.4	10.00	13.40	11.0	42.9	16.75
Propane (C_3H_8)	159.8	17.8	142.0	2.4	3.38	43.9	159 0	4.22

Of the above refrigerants only carbon dioxide is noninflammable. Propane or butane as a diluent of atmospheric air is wholly without the injurious and even fatal action that is associated with such irritant gases as ammonia and sulphuric dioxide. The general fire hazard of propane and butane is in a class with gasoline vapor and illuminating gas, and hence is more hazardous than ammonia. When the hydrocarbons are confined in the refrigeration unit, however, this hazard dwindles to that of ammonia. When discharged into surrounding air, the fire hazard of hydrocarbons is similar to that of gasoline vapor, and is greater than that of ammonia. This increase in hazard can be fully determined only by practical experience, and will depend largely on the construction and operation of refrigeration systems capable of service without leakage, and safeguard against emergency hazards of mechanical systems operating under pressure.

Propane has been used quite successfully with a compression cycle such as used with ammonia, and as can be seen from the above table, with some saving in economy. The refrigeration so produced was used in subcooling absorption oil to a temperature below that obtainable with atmospherically cooled water. With present day use of rectifiers in most plants it should be possible to obtain this same refrigeration at very nominal cost by utilizing excess high pressure reflux for the refrigerant, thus eliminating the need of compression. Such reflux is generally of high propane content.

Use of Butane

Butane is being utilized to a small extent as a source of heat in fractional tonnage refrigerating machines of the absorption type. Such machines are of portable type, as used for railway service, where weight of fuel is an important item. However, there is no reason why available hydrocarbons should not be used as refrigerants, especially in refineries and gasoline plants, where their use introduces no greater hazard than those already existing in these places.

As was the case for propane, butanes may be dehydrogenated to give olefines, primary decomposition being followed by complicated reactions at temperatures above 650° C. Even so the cracking of iso and normal butane is now being carried out on a commercial scale for production of a mixture of ethylene and propylene, which is used for manufacture of corresponding glycols.

From the work already done it has been concluded there is no essential difference between the reactions of butanes with oxygen and those of propane. The aldehyde with one less C atom than the hydrocarbon is formed in a fairly pure state by oxidation at the lowest possible furnace temperature. This presupposes an excess of the hydrocarbon. High temperatures, on the other hand, together with catalysts and excess oxygen will result in formation of olefins or unsaturates. With these latter compounds as a starting point it should eventually be possible to produce wood alcohol on a commercial scale.

While the butanes are readily chlorinated by moist chlorine at ordinary temperatures these reactions have received little attention compared to that given methane. This fact should cause no concern since a field is already open to butane as a fuel, and one in which the element of explosion is lacking. Probably the monochlorides of butanes can be converted into corresponding alcohols, but it is doubtful if such a method could ever compete with the established way of producing this compound.

Use in Aviation

The natural gasoline remaining after the removal of the butane and lighter fractions is suitable directly as a fuel for motor car and aviation motors. As the weight of fuel to be used in an automobile is of little importance it is doubtful if these natural gasoline fractions will have any particular appeal for this service. In the case of aviation motors, however, the reverse is true since weight of aircraft gasoline has considerable bearing upon power development and cruising radius. That natural gasoline is a superior product for aviation purposes is testified to by any number of epochal flights made in which this type of gasoline was used. During the past year there was over 40,000,000 gallons of gasoline consumed by the various aviation companies operating scheduled passenger, mail and express lines, and in addition to this figure, must be added fuel used in chartered flights and private flying. Thus airplanes are still a very small factor in total gasoline consumption since there was used during the same period for all purposes over 17,320,000,000 gallons. With the present increase in both commercial and private flying, together with the premium price received for this class of gasoline, the field appears to hold great promise. This is particularly true for those concerns capable of marketing their own product.

A gasoline which has been found particularly efficient for aviation work, and which may be considered as a typical example of gasolines available from the present natural product by means of sharp fractional distillation, is given below:

I.B.P. (by A.S.T.M. distillation)	108 to 110° F.
10 per cent point (by A.S.T.M. distillation)	115 to 118° F.
50 per cent point (by A.S.T.M. distillation)	145 to 150° F.
90 per cent point (by A.S.T.M. distillation)	220 to 230° F.
F.B.P. (by A.S.T.M. distillation)	350 to 360° F.
Recovery (by A.S.T.M. distillation)	97 to 98 per cent
Reid vapor pressure at 100° F.	10 to 12 lbs. sq. in. abs.
Weight (maximum)	5.75 lb. per gallon
Fractional analysis, Propane	0 per cent liquid volume
Iso-butane	0 per cent liquid volume
N-butane	2 per cent liquid volume
Iso-pentane	18 per cent liquid volume
N-pentane and heavier	80 per cent liquid volume

On an average such an acceptable fuel can be produced for approximately 9.5 cents per gallon utilizing the manufacturing loss as gaseous fuel. If this vaporized overhead is used for domestic fuel or bottled gas, the cost to produce 1 gallon of aviation fuel reduces to about 7.75 cents per gallon.

Marine Uses

Likewise, another new market for thoroughly rectified straight natural gasoline is available, and this is in the fast growing fleet of boats powered by gasoline engines used by sportsmen on lakes, rivers and along the coast. The fuel required by these boats, operated largely for pleasure since commercial motor boats are greatly in the minority, is larger than would appear off-hand. This becomes apparent when one considers a speed boat is operated with motor under full load and running at top speed about 85 per cent of the time; such is not true in the case of the automobile. This potential market for a fuel of special quality giving better service and hence added enjoyment to the owner, consists of 1,000,000 motor boats and 350,000 outboard motors. The estimated fuel requirement for this fleet has been placed at 1,435,000,000 gallons per year. At the rate at which motor boating is growing as a sport this figure will be annually increased, and hence is an outlet for natural gasoline of no small importance.

Pentane Fraction

Natural gasoline contains on the average from 20 to 40 per cent pentanes and this fraction can readily be recovered separately if desired. As the pentane fraction is very desirable as a blending material for refinery gasoline, which is not true for propane, and to a certain extent even for butanes, this constituent is not often removed in the average gasoline plant. Consequently, little attention has been given to the oxidation of this particular fraction. In fact, there is probably only one commercial unit in operation where liquid hydrocarbons are oxidized, and in this case the base stock is a kerosene, the resulting product being the material from which the alcohol denaturant known as Aldehol is prepared. Similarly, because of the value of pentanes and heavier in natural gasoline these materials have received little or no attention from a cracking standpoint.

Quite recently, however, a demand has been created for a product from natural gasoline which is practically a pentane cut. The specifications for this material are about as follows:

Gravity	93-95 A.P.I. @ 60° F.
I.B.P.	80° F.
F.B.P.	100° F.
Weight	5.25 lbs. per gallon

The liquid is to compete with the so-called bottled gas for rural domestic fuel purposes. Due to the characteristics of the material it is necessary to carburete air, because, unlike propanes and butanes, pentanes would not readily gasify except at temperatures in excess of 100° F. The process thus requires a small electric driven compressor which supplies required air pressure to the pentane supply tank, wherein air becomes saturated with hydrocarbons. The vapor gas leaving the tank is carried to appliances in the home where it is used exactly as city gas. In cost, this gas service averages about $4.50 per month, and hence it compares very favorably with average cost of city artificial gas. Certain advantages are gained through use of the pentane fractions in this fashion compared with the now better known bottled gas. Due to lower gravity and vapor pressure transportation of pentane is much simpler than in the case of propanes and butanes. The latter two fuels require expensive special designed tank cars for bulk transportation, as well as heavy steel cylinders at consuming points. This is avoided in the case of pentanes, which can be handled as is ordinary natural gasoline.

Chlorination of Pentanes

Without doubt the most remarkable development of by-products from natural gas has been accomplished through the chlorination of the pentane fractions. The recovery of a relatively pure mixture of normal pentane and isopentane by fractional distillation of certain grades of ordinary natural gasoline provides the raw material for the process. This material is then chlorinated in the vapor state, three reaction products being separated from each other by means of fractionating columns. These components are: (a) hydrogen chloride, which is absorbed in water to produce hydrochloric acid; (b) pure amyl chloride; and (c) a small amount of polychloride residue. The amyl chloride is then mixed with the required amount of caustic soda and hydrolyzed in the presence of a catalyst to the corresponding alcohol, splitting off sodium chloride. The Sharples Solvent Corp., after redistilling and carefully fractionating these alcohols, sell the resulting product under the tradename of "Pentasol" which is used in pyroxylin lacquers. In the following table is given other products produced by this same company from the abovementioned hydrolysis, showing the extent of commercial development at present.

Amyl acetate has been made from the pentane fraction of gasoline by chlorination in the presence of activated charcoal and esterifying with sodium acetate under pressure, again with activated charcoal. The reactions are:

$$C_5H_{12}+CL_2=C_5H_{11}CL+HCL$$

$$C_5H_{11}CL+CH_3COONa=$$

$$CH_3COOC_5H_{11}+NaCL$$

The Sharples company prepares amyl acetate on a commercial scale from amyl alcohol in presence of a catalyst. Sulphuric acid will unite with the alcohol to form amyl sulphuric acid which in turn reacts with acetic acid to form the desired amyl acetate. These reactions are as follows:

$$C_5H_{11}OH+H_2SO_4=C_5H_{11}HSO_4+H_2O$$

$$C_5H_{11}HSO_4+CH_3COOH=$$

$$CH_3COOC_5H_{12}+H_2SO_4$$

This material is directly competitive with butyl acetate and with decreased production costs should capture an increasingly larger share of the lacquer market.

Cleaners' Solvent

The removal of the pentane cut from natural gasoline leaves a residual gasoline of about 130° F. initial boiling point and 350° F. endpoint. In some instances this gasoline can be used as a blending material for motor fuel and so disposed of, or, it can be used as a raw stock for production of solvents. For instance, the dry cleaning industry uses over 30,000,000 gallons of cleaner yearly, much of which is either a straightrun motor gasoline or a specially prepared refiner's naphtha. The desired cleaners' solvent has a flashpoint (Cleveland open cup) between 105 and 110° F., with an initial boiling point of 280 and an endpoint of 400° F. Such a solvent can readily be produced from the residual gasoline by fractional distillation.

This residual gasoline may also be dis-

tilled to remove the small percentages of heavier fractions present, to produce a 295-300° F. endpoint gasoline, which can be marketed as a rubber solvent for manufacture of rubber cements. Then, too, a second fraction can be produced with a boiling range of 300-350° F. which forms a substitute for commercial turpentine. Quite recently a number of companies have developed a market for a household solvent consisting chiefly of hexanes. The boiling range of this solvent is from 130 to 250° F. On the whole it may be said the success to be obtained in the solvent field depends wholly upon ability of manufacturers to develop a specialty market, which, once developed, is highly remunerative.

Synthetic Products

During the course of this article the potential magnitude of the various possible synthetic industries based on products and waste products of the natural gasoline industry has been pointed out. Attention has also been called to numerous possible processes and reactions which are now in the laboratory stage, and about which no conclusions can be drawn concerning their economic possibilities. More concretely, the extent of the present-day development of actual commercial by-product plants has been briefly described.

The synthesis of chemical products from natural gas and gasoline is admittedly difficult compared with products derived from coal, for example. This follows from the fact that these hydrocarbon mixtures are so complete it is almost impossible to separate out any component in a pure form, and this is particularly true if its boiling point happens to be above 100° F. This is an initial handicap for hydrocarbons as a raw material, since chemical products produced from mixed or incompletely purified raw materials are always more complex than the raw materials themselves. Consequently, in reviewing the products so derived today on a commercial scale, and remembering this development probably does not date back over eight years, we are forced to credit and acclaim those fostering these enterprises. Such success resulting from so short a time of endeavor is most encouraging for future expansion of by-products in the natural gasoline industry.

Quite naturally the pioneers in this development work are today leaders in the field, and in almost every instance, they will be found to be large chemical or gasoline manufacturers. They were, therefore, in a position to employ the necessary highly trained engineers and chemists, and to provide these with all necessary facilities for properly carrying on the work. The larger firms will continue to dominate the field because the small manufacturer does not generally have the resources to carry on work of this nature. Large corporations have a further advantage, and that is they are in much better shape to market various by-products by reason of already existing trained sales departments. We can, therefore, only conclude that further strides in by-product manufacture will be brought about principally through efforts of the major companies. This means that the small gasoline producer must continue to rely upon the refiner for dispensing of his product, and it is quite essential, therefore, his product be of such characteristics that the refiner can use it in maximum quantities as a blending material. Under these conditions it naturally follows the plant must be operated in such a fashion as to produce the desired major product. Fractions which cannot be included in this product are potential raw material for production of by-products. For the present, at least, such by-products will necessarily fall within the range of solvents, gaseous and liquid fuels.

In Other Industries

In order to facilitate the establishment at a future date of more complicated and remunerative by-products it would be well for the smaller manufacturers to take a page from the history of industries like the gas, electric, cement, steel, brick, leather and others. A survey of each will find they maintain research laboratories of their own, financed by contributions from their members, and this research has proved a necessity and made millions of dollars for them in savings, development of new products and scientific marketing. The natural gasoline manufacturers should not overlook such possibilities in connection with by-product development.

In conclusion, we can but compare the by-product situation in the natural gasoline industry today with the by-product picture of the coal industry of 20 years ago. Then, the problem of identification of products and methods of their production from high temperature coal tars was considered hopeless. What was considered hopeless at that time is now a reality, likewise, natural gas and gasoline in the hands of the initiated will become a chemical material.

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WEST TEXAS FIELDS

(Continued from Page 73)

and others, junked at total depth of 2,900 feet.

Upton County

Eppenauer Drilling Co.'s No. 1 Chaney, topped pay 2,290 feet; initial production 25 bbls.; total depth 2,400 feet.

Taylor County

Mid-Continent Petroleum Corp.'s No. 1 Lindsey, topped pay 2,375 feet; initial production 75 bbls.; total depth 2,414 feet.

Ward County

Cranfill & Reynolds' No. 1 Robeson has made about 100 bbls. in the past 30 days. The well had a showing of oil at 2,476-80 feet and was shot with 30 quarts of explosive from 2,420-35 feet. Since the shot it has repeatedly headed and flowed, but the production has not averaged much more than 3 bbls. per day. C. C. Dearborn and others' No. 1 Mrs. J. H. Boogher, topped first gas 2,173 feet, with increase at 2,182 feet and at 2,187 feet; show of oil 2,205 feet; initial production 8 bbls.; total depth 2,287 feet.

Runs Through Trunk Lines

Company and location—	Prod.
Atlantic, Houston	27,500
Gulf, Ranger	36,730
Humble, San Angelo	44,217
Humble, Station "A"	52,157
Illinois, Del Rio	34,599
Magnolia, De Leon	24,725
Pasotex, El Paso	19,456
Shell, Houston	27,063
Texas, Houston	21,233
Shell, Healdton	39,228
Total	326,908

Runs to West Texas Refineries

Amarillo Ref. Co., Pyote	844
Big Spring Ref. Co., Big Spring	630
Burford Ref. Co., Pecos	5,131
Bluebonnett Ref. Co., Wickett	None
Cosden Ref. Co., Big Spring	7,737
Col-Tex Ref. Co., Colorado	6,842
Great Western Ref. Co., Big Spring	3,428
Humble Oil & Ref. Co., McCamey	10,653
Mid-Tex Ref. Co., Midland	None
Tonkawa Ref. Co., Pyote	1,800
Wickett Ref. Co., Wickett	159
Total	37,224

Tank Car Shipments

Fox & Thorsen from Mertzon	165
Landreth Prod. Co. from Crossett	None
Thomas & Brann from Grant City	200
Orient from Hurdle	90
Southern Crude from Wickett	24,044
Total	24,499

Total daily average distribution	388,631
Total daily average production (including Lea County, N. Mex.)	317,849
Daily average from storage	70,782

PANHANDLE FIELDS

(Continued from Page 74)

Lone Star Gas Co.'s No. 1 Penn had the Ranger sand at 3,786 feet; initial production 2,063,000 feet of gas; total depth 3,795 feet.

Erath County

Associated Producers Co. had the gas sand at 3,241 feet; initial production 134,000 feet of gas; total depth 3,275 feet. Texas Pacific Coal & Oil Co.'s No. 1 fee was dry and abandoned, total depth 458 feet.

Shackelford County

Freeman and others' No. 1 Morris & Bine, top pay 1,595 feet; initial production 191 bbls.; total depth 1,617 feet. W. B. Holder's No. 1 Brooks, dry and abandoned, total depth 627 feet. Roeser & Pendleton's No. 2-202 Dawson and others, top pay 1,597 feet; initial production 191 bbls.; total depth 1,597 feet. Roeser & Pendleton's No. 1-204 Morris & Bine, top pay 1,573 feet; initial production 40 bbls.; total depth 1,598 feet. Roeser & Pendleton's No. 1-205 Morris & Bine, top pay 1,577 feet; initial production 22 bbls.; total depth 1,715 feet. T. K. Simmons' No. 4 Harvey, dry and abandoned, total depth 1,753 feet.

Stephens County

Herbert Oil Co.'s No. 1 Langford, dry and abandoned, total depth 2,315 feet.

WICHITA FALLS COMPLETIONS

Week ending June 14

Archer County

Bailey and others' No. 1 Brown, oil sand 1,286 feet; initial production 42 bbls.; total depth 1,292 feet. Consolidated Oil Co. of Texas' No. 1 Tarr, dry and abandoned; total depth 1,401 feet. E. J. Stump's No. 1 Huff, dry and abandoned; total depth 1,830 feet. Burns and others' No. 2 Harmel, top pay 1,438 feet; initial production 10 bbls; total depth 1,442 feet. Fain & McGaha Oil Corp.'s No. 1-B Hamilton, dry and abandoned; total depth 1,284 feet. C. W. Gilliland's No. 1 Rogers, dry and abandoned; total depth 1,450 feet. Gillilan and others' No. 3 Symank, oil sand at 1,420 feet; initial production 12 bbls.; total depth 1,438 feet. J. H. Massie Brothers' No. 1 Justice, dry and abandoned; total depth 1,190 feet. Petroleum Producers Co. and others' No. 1 Campbell, dry and abandoned; total depth 1,383 feet.

Baylor County

Consolidated Oil Co. and others' No. 1 Portwood, dry and abandoned; total depth 1,402 feet. Grisham and Barnsdall's No. 4 Harry Portwood, top pay 1,373 feet; initial production 72 bbls. oil and 27 bbls. of water; total depth 1,401 feet.

Clay County

J. F. Merrick and others' No. 4 Byers & Co., oil sand 1,013 feet; initial production 40 bbls.; total depth 1,021 feet.

Jack County

Stump and others' No. 1 Knox Land & Cattle Co., dry and abandoned; total depth 3,508 feet.

Montague County

Carter and Rycade's No. 13 Cunningham and others, oil sand 879 feet; initial production 30 bbls.; total depth 909 feet.

H. E. Crenshaw and others' No. 1 Hinton, dry and abandoned; total depth 1,852 feet. J. L. King's No. 1 Lox, oil sand 799 feet; initial production 7 bbls. oil and 1,000,000 feet of gas; total depth 815 feet. The Texas Company's No. 3 Henley, oil sand at 1,001 feet; initial production 8 bbls.; total depth 1,020 feet.

Wichita County

Arkansas Fuel Oil Co.'s No. 33 Kemp & Kempner, oil sand at 1,754 feet; initial production 49 bbls.; total depth 1,770 feet. Comac Drilling Co. and Prairie Oil & Gas Co.'s No. 2 Neale, oil sand at 1,776 feet; initial production 78 bbls. of oil and 10 bbls. of water; total depth 1,778 feet. Humble Oil & Refining Co.'s No. 26 Taylor, oil sand at 1,650 feet; initial production 15 bbls.; total depth 1,676 feet. Lambert & Trout's No. 1 Overby, oil sand at 1,773 feet; initial production 110 bbls.; total depth 1,778 feet. Roden & Benton's No. 1 Hanaker, dry and abandoned; total depth 2,012 feet. Staley & Wynne's No. 2 Neale, oil sand at 1,770 feet; initial production 76 bbls.; total depth 1,779 feet. United Producers Co.'s No. 15 Hodges, oil sand at 1,751 feet; initial production 81 bbls.; total depth 1,774 feet.

Wilbarger County

Bradstreet Co.'s No. 1 Waggoner, dry and abandoned; total depth 2,825 feet. Golding-Cochran and others' No. 4 Waggoner, oil sand at 1,928 feet; plugged back to 1,936 feet; initial production 60 bbls.; total depth 1,940 feet. Golding & Cochran and others' No. 5 Waggoner, dry and abandoned; total depth 1,938 feet. Hamilton's No. 1 Waggoner, dry and abandoned; total depth 1,301 feet. Independent Oil & Gas Co.'s No. 1 Moran, oil sand at 2,322 feet; initial production 20 bbls.; total depth 2,337 feet. Phillips Petroleum Co.'s No. 1 Waggoner, oil sand at 1,851 feet; initial production 35 bbls.; total depth 1,890 feet. Staley & Wynne's No. 3 Waggoner, junked and abandoned at 2,427 feet. Waggoner Refining Co.'s No. 12 Waggoner, top pay 2,645 feet; initial production 40 bbls.; total depth 2,671 feet.

Young County

Atlantic & Christie's No. 2-B Jarnigan, top pay 2,512 feet; initial production 800 bbls.; total depth 2,553 feet. Independent Oil & Gas Co.'s No. 4 Jarnigan, topped pay 2,570 feet; shot with 10 quarts from 2,570-94 feet; initial production 67 bbls.; total depth 2,612 feet. Banner Oil Co.'s No. 8 Davis, oil sand at 888 feet; initial production 6 bbls.; total depth 913 feet. Brazelton and others' No. 1 Larimore, oil sand 687 feet; initial production 264 bbls.; total depth 708 feet. Campbell Oil Corp.'s No. 1 Shaw Brothers, dry and abandoned, total depth 1,165 feet. Flowers & Barkley's No. 1 Deats, dry and abandoned, total depth 1,302 feet. U. B. Hamilton's No. 2 Thomas, dry and abandoned, total depth 1,036 feet. Hunter Oil Corp.'s No. 3 Bloodworth, oil sand 1,065 feet; initial production 60 bbls.; total depth 1,088 feet. Jacob Oil & Gas Co.'s No. 1 Holden, dry and abandoned, total depth 902 feet.

C. J. Kliner's No. 2 Lagan, dry and abandoned, total depth 875 feet. George Mollenkoph's No. 1 Larimore and wife, dry and abandoned, total depth 765 feet. Nimrod Oil Co.'s No. 5 Hall, dry and abandoned, total depth 886 feet. Panhandle Refining Co.'s No. 5 Lowe, dry and abandoned, total depth 673 feet. Parks and others' No. 3 Hall, oil sand at 881 feet; initial production 10 bbls.; total depth 895 feet. Perkins & Cullum's No. 14 Dunagan, oil sand 1,063 feet; plugged back to 1,076 feet; initial production of 50 bbls. of oil and 15 bbls. of water; total depth 1,078 feet. Preston Brothers' No. 1 Pringle, dry and abandoned, total depth 1,040 feet. Remington's No. 1 Terrell, dry and abandoned, total depth 750 feet. Remington & Nelson's No. 1 Bulock, dry and abandoned, total depth 738 feet. E. R. Riggs' No. 6 Larimore and wife, oil sand at 687 feet; initial production 1,104 bbls.; total depth 707 feet. E. R. Riggs' No. 7

Larimore and wife, oil sand 688 feet; initial production 1,193 bbls.; total depth 708 feet. Shappell Oil Co.'s No. 8 Garrett, dry and abandoned, total depth 614 feet. H. R. Stastney's No. 1 Wilson, dry and abandoned, total depth 1,008 feet. Wooten & Reed's No. 1 McBroyer and others, dry and abandoned, total depth 705 feet. Wooten & Reed's No. 1 Jordan, dry and abandoned, total depth 707 feet.

BASIC PRINCIPLES OF ORIFICE METERS

(Continued from Page 75)

stream at the point of measurement in order to obtain volume. This area is equal to $\frac{\Phi d^2}{4 \times 144}$. Substituting these values we get Qf equals $359\, d^2 \frac{h}{\delta}$. This is one form of the equation for liquids. If we substitute 62.37 for δ and correct for water on the surface of the mercury we obtain the equation for the flow of water in cubic feet per hour — $Q = 43.74\, Ed^2 \sqrt{h}$. But the equation is of no particular use to us for the measurement of gas in this form because we do not have a convenient way of expressing density in pounds per cubic foot. We know that the density is dependent upon the pressure, temperature and composition of gas.

We refer to the Physics Test Book and find Charles' and Boyle's laws which express the relationship of these values with that of density. We know that air at 32° F. and 14.7 pounds barometric pressure weighs .08073 pound per cubic foot. Now taking advantage of Charles' law, the density of this air at any pressure P and any temperature, Tf, will be .08073 $\frac{492\ P}{14.7\ Tf}$ pound per cubic foot multiplied by and the density of gas of any composition will be its gravity G times this figure. We must use this same law in order to convert the quantity from flowing conditions to standard basic conditions. The quantity of Qf is expressed in elastic units depending upon the flowing temperature and pressure prevalent in the line. We are interested in the quantity which will produce a certain number of B.t.u.s heat per cubic foot and we know that a cubic foot measured under a pressure of 100 pounds per square inch would contain more heating value than the same volume at atmospheric pressure. Q is equal to $218.44\, d^2 \frac{T_B}{P_B} \frac{hp}{T_{fG}}$. Now we have used Boyle's law, which imperfect gases do not follow strictly.

Deviation from Boyle's Law

The question naturally arises as to how great is this deviation from Boyle's law. We refer you to page 18, Figure 5. of Bureau of Standards Circular No. 379 on the "Relations Between Temperature, Pressure, and Volume of Gases." Figure 5 shows the characteristics for methane, one of the principal hydrocarbon constituents of all natural gas. The first thing that will be noticed is that there are a number of different curves for the various temperatures. As the temperature decreases, the deviation from Boyle's law increases. At 200° C. the deviation up to 130 atmospheres is hardly noticeable, but at 0° C. there is a 2 per cent deviation at a pressure of 10 atmospheres. Offhand this deviation with temperature would make it look like an almost impossible proposition to ever arrive at an accurate correction under operating conditions. However, we find that actual flowing temperatures of gas in buried pipe lines in this part of the country will range from 10° to 20° C. practically the year round. The range of conditions covered by the Bureau of Standards' curves greatly exceeds anything that will ever be found in practice.

The question naturally arises as to why all of these little defects in natural physical laws are coming to light in connection with the investigation of the orifice meter. Would they not also affect other types of measuring devices? The answer is that they would, but the orifice meter has become so important as a universal measuring device in the past few years that the most rigid examination of all of its pecularities is justified. Millions of dollars are being spent to decrease the inaccuracies of this type of measuring device by a fraction of a per cent. Considering the millions of dollars that change hands monthly on the basis of its measurement, this money could not be more profitably spent.

When we say that all types of measuring devices will be affected by deviation from Boyle's law, we do not refer specifically to the velocity type of meter which includes flow nozzles, venturi throats, pitot tubes, etc., which are naturally subject to the same laws which govern the orifice meter, but we refer broadly to all types of measurement equipment. This includes the positive type of meter in which the effect of compressibility is twice as important as is the case with the orifice meter. It also includes the heat transfer type of measuring equipment, because the specific heat of gas varies with the pressure applied to it.

Standard Commercial Formula

Now if we supply an additional factor of E to the formula we have our standard commercial formula

$$Q = 218.44\, Ed^2 \frac{T_b}{P_b} \sqrt{\frac{h^P}{T_{fG}}}.$$

This factor E covers all of the points overlooked in the original hpothesis from which the flow equation was derived. It is an experimentally derived quantity and is accurate as long as the conditions under which it is used similate those under which it was derived. The most important factor in influencing the value of E is the fact that the area of the gas stream at the downstream pressure tap is not the same as that of the orifice. This is due to the fact that the gas in sweeping through the constricting orifice past the sharp edges does not travel axially through the pipe line but attains an inward component which tends to narrow down the stream.

We have neglected the fact that the gas has an initial velocity before it reaches the orifice. This effect might very easily have been taken into account and we would have added to the formula a correction for velocity of approach which would have made the experimentally determined value, which by the way, would no longer be E, a more nearly constant quantity for all ratios of d_D. But we did not consider it advisable to unnecessarily complicate the derivation of the formula to illustrate a point which could not possibly be of any practical value to you. The value of E includes a correction for velocity of approach.

Velocity Not Uniform

We have not considered the fact that the velocity of the gas is not uniform along a traverse of the pipe. Under usual flowing conditions, the average velocity throughout the pipe is approximately 86 per cent of the maximum velocity prevalent at the center of the pipe. This value varies with the rate of flow, the size of pipe and the viscosity of flowing gas and is also dependent to a slight extent on the condition of the inside surface of the pipe. At very low rates of flow, the ratio of average velocity to central velocity drops to 50 per cent. The variation of velocity along a traverse is due to friction. We are inclined to forget that gases are subject to frictional effects but this, nevertheless, is an important physical characteristic. (Frictional constants for various gases will be found published in various physical tables.) Realizing this fact, you can see the advisability of selecting none but the best condition pipe for orifice meter settings. Rusty or dirty pipe should be discarded or used in some less important location. No pipe is truly circular in cross section, but that which is to be used in meter settings should be calipered in several planes and sections should be selected such that at least on the upstream side of the orifice the diameter is fairly uniform. The condition of the pipe is particularly important on high ratios of $\frac{d}{D}$ on which the velocity of approach is extremely important. On values of $\frac{d}{D}$ low enough so that the change in value of E is slight many of these refinements of method of measurement may be safely overlooked. The measurement committee of the American Gas Association had points of this sort in mind when it placed the limit of six-tenths upon the value of $\frac{d}{D}$ recommended for use by the industry.

At this point, it is advisable to mention the effect of viscosity. Just as a warning against the use of extremely low differentials at critical conditions. The effect is extremely important in many liquid flow applications and on manufactured gas applications on which it is necessary to use low differential, but can usually be neglected in the measurement of natural gas.

Low Differentials

Mention of the subject is particularly important at this time, because manufactured gas men are beginning to realize that they have a great many measurement problems which may be solved by the use of the velocity type meter. The natural tendency, having only low static pressures available, is to demand low range differentials. The same results may be accomplished without the attendant dangers of low differentials by the use of flow nozzles, which give a high pressure recovery and yet have many of the advantages of the sharp edged orifice, the only difference being that the approach to the orifice is streamlined to afford minimum resistance to the flow of the gas.

A discussion of the subject of viscosity from a practical angle was first printed in the Foxboro handbook, "Flow Meters for Gas Measurement," in March, 1928. We publish a formula for a criterion which may be applied to the flowing conditions. When the value of the criterion computes to be more than 30,000, as will be found to be the case in most commercial measurement jobs, the effect of viscosity can be neglected. A technical discussion of the subject will be found in the recent Bureau of Standards' Research Paper No. 49, dated March, 1929.

We mentioned in the preceding discussion that the value of E accounts for the difference in the area of the stream at the downstream point of measurement and that of the orifice. Naturally the value depends upon the point at which the pressure taps are taken. The points usually chosen are those at which the change in pressure is slight, that is, either at the point of minimum pressure or at the point of maximum pressure. For a picture of the pressure changes along the pipe corresponding to various $\frac{d}{D}$ ratios we refer you to Figure 18 of Mr. Hodgson's paper on the "Commercial Metering of Air, Gas and Steam," presented before the Institute of Civil Engineers of England. You will note that there are two points on the downstream side of the plate at which the stream is very flat. One of them is at a point very close to the orifice, the other at a point five or more pipe diameters downstream. The point up close to the orifice gives a high pressure recovery, is convenient to use because the taps may be made at the factory where the flange is cast, allows reverse flow to be measured without changing the coefficient, and is reliable because the tap is separated from the flowing gas by a space filled with practically motionless gas and it is therefore impossible to obtain suction or impact effects due to projecting nipples and imperfectly made pressure taps. Distant taps, which are usually made at eight pipe diameters downstream, make it possible to measure a high rate of flow with a given orifice.

Experiments Run on Taps

Experiments have been run on taps at various other locations downstream, from the face of the plate out to one-half pipe diameter and from four pipe diameters to eight pipe diameters downstream. However, flange connections and two and one-half and eight pipe diameters have been universally adopted as standard for gas measurement. A rigid investigation of the peculiarities of orifice measurement by these standard taps made under the auspices of the measurement committee of the American Gas Association, assisted by the Bureau of Standards, Bureau of Mines and the orifice meter manufacturers is just now being concluded. This investigation, covering a period of several years, has included the checking of coefficient values, the effects of disturbance of fittings and methods of eliminating them, the effects of various types of flanges, the effects of supercompressibility or deviations from Boyle's law and similar subjects. The effect of all of these data has been to strengthen our confidence in the orifice meter as an accurate and reliable measuring device when properly used.

It is the job of everyone of us to perfect ourselves in knowledge of the inaccuracies which may occur, in order to avoid them.

Do not get the idea that the new developments are in any way disproving the accuracy of the orifice meter. To date they have brought out the possibility of attaining accurate measurement under various conditions never believed to be possible by any means. The corrections to our regular formula are all small ones and will mean that some day we shall be able to reduce our limits of overall accuracy.

The work of this committee is going to result in merely broadening the range of conditions under which the orifice meter may be used with satisfactory results. The job of the meter company is going to be the disseminating of this information in such form that it will get to every user of the orifice meter and will be understood and used.

SINCLAIR EMPLOYES INSURANCE

In the first year, just completed, of the group life insurance plan of the Sinclair Consolidated Oil Corp. and subsidiary companies, 13,277 employes took out policies amounting to $33,108,000. The eligibility requirement is six months' service. The company pays the entire cost of a $1,000 policy and part of the cost of all "additional insurance," which the employe may take in amounts depending upon his annual earnings. More than 95 per cent of the eligible employes have taken out "additional insurance." The policies cover both death and (for policy holders under 60 years of age) total and permanent disability from any cause.

Within the year $139,000 were paid to beneficiaries of 61 decreased employes, an average of $2,278.68 per employe. Disability claims amounting to $22,000 were allowed to nine employes, an average of $2,444.44.

The plan under which the insurance is operated gives employes insurance at wholesale rates, without medical examination and at the same rate for all ages.

WRONG PICTURE SHOWN

It has just been discovered that the photograph of a pipe line appearing in the S. R. Dresser Manufacturing Co. advertisement which ran in the May 8 issue of The Oil and Gas Journal was incorrectly identified as being a part of the Amarillo to Denver 22-inch Dresser coupled high pressure natural gas line. This advertisement was entitled "In the Higher Altitudes Dresser Couplings Dominate." Instead of a view of the Denver line, the installation shown was a view taken in Wyoming showing a section of a line installed by the Midwest Refining Co. The Dresser company's policy is to be accurate in each of its printed advertising messages and for this reason the wrong identification of this particular photograph is being announced as promptly as possible.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 74)

Suloch Oil Co.'s No. 1 Bost, 990 ft. S, 330 ft. E, SW, Sec. 1, Blk. S.&F. ..... T.D. 2,960 ft; U.R. 6-in. csg.
Sweeney et al's No. 1 Locke, 164 ft. N and W, 40-ac. tr. along R.R. in Sec. 57, Blk. 7, I.&G.N. Sur. ..... Drlg. 615 ft.
Texas Interstate P. L. Co.'s No. 1 Burnett, 1,320 ft. N, 660 ft. W, of W 480 ac., Sec. 99, Blk. 5, I.&G.N. Sur... Drlg. 2,350 ft.
Texas Interstate P. L. Co.'s No. 2 Burnett, C NE, Sec. 77, Blk. 5, I.&G.N. Sur. ..... Location.
Texas Interstate P. L. Co.'s No. 1 Sanford, C NW NE, Sec. 4, Blk. 3, A.B.&M. Sur. ..... T.D. 3,130 ft.; P.B. for gas well; 5,000,000 ft. gas 2,560 ft.; S.O. 2,937 ft.

CHILDRESS COUNTY

Continental Oil Co. and Sun Oil Co.'s No. 1 Johnson, 660 ft. NE, Sec. 580, Blk. H, W.&N.W. Sur. ..... S.D. 3,340 ft. to run 10-in. csg.
C. L. Sloane et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands ..... T.D. 5,000 ft.; C.O.

COLLINGSWORTH COUNTY

Shope Bros.' No. 1 Aldus, 410 ft. N, 330 ft. E, Sec. 96, Blk. 16, H.&G.N.R.R. Sur. ..... Show oil and gas 1,678 ft.; bailed estimate 10 bbls. first day from G.W. 2,194-98 ft; T.D. 2,900 ft.
Shoupe Bros.' No. 1 Whitson, 330 ft. N and E, SW, Sec. 33, Blk. 12, H.&G.N.R.R. Sur. ..... Standard rig.

DONLEY COUNTY

Blue Bonnett Oil Co.'s No. 1 Ball, 1,075 ft. N line, 985 ft. E line, Sec. 22, Blk. E, D.&P.R.R. Sur. ..... T.D. 3,006 ft.; contract depth.
Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... S.D. 4,025 ft.

GRAY COUNTY

Amalgamated German-American Oil Co.'s No. 1 Webb, 330 ft. S and W, E½ NW, Sec. 12, Blk. A-9, H.& G.N. Sur. ..... Rigging up.
Baldridge & Lilley's No. 1 Melton, 330 ft. N and W, E½ SE, Sec. 95, Blk. B-2, H.&G.N.R.R. Sur. ..... T.D. 3,140 ft; 2,000 ft. oil in hole; estimated 15,000,000 ft. gas 2,-918 ft.
Cockrell-McIlroy Oil Co.'s No. 1 Allam, 330 ft. N and E of E½ of NE¼, Sec. 127, Blk. 3, I.&G.N. Sur. ..... Rig.
Cockrell-McIlroy's No. 1 Horner, 330 ft. S and E, NE, Sec. 139, Blk. 3, I.&G.N. Sur. ..... Rig.
Cockrell-McIlroy Oil Co.'s No. 1 Sailor, 330 ft. out of NW SW NE, Sec. 138, Blk. 3, I.&G.N. Sur. ..... T.D. 3,225 ft; T.P. 3,169 ft; swbd. 420 bbls. oil in 16 hrs.
Continental Oil Co.'s No. 1 Wright, 330 ft. S and W, NW, Sec. 13, Blk. 3, I.&G.N. Sur. ..... Location.
Danciger O. & R. Co.'s No. 1 Catlin et al, 175 ft. S, 200 ft. E of N 71 ac. of E 231 ac., Sec. 57, Blk. 3, I.&G.N. Sur. ..... S.D. 2,750 ft.
Danciger O. & R. Co.'s No. 5 Morse, 330 ft. N and E, SW SW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... S.D. 2,505 ft.
Danciger O. & R. Co.'s No. 1 Shaw, 330 ft. S, 286 ft. E of E 39½ ac., NW, Sec. 5, Blk. 1, A.C.H.&B. Sur..... S.D. 2,748 ft; spraying 30 bbls. oil and 13,000,000 ft. gas daily.
Empire G. & F. Co.'s No. 2 Hexter, C SE, Sec. 235, Blk. B0Z, H.&G.N. Sur. ..... Drlg. 3,012 ft.
Empire G. & F. Co.'s No. 1 Whittemore, 2,310 ft. N and W, Sec. 14, Blk. 4, I.&G.N. Sur. ..... Location.
Gardner Bros. and Collins' No. 2 Saunders, 955 ft. S, 330 ft. E of W 68 ac., E½, J. G. Eustice Sur. ..... Location.
Humble O. & R. Co.'s No. 1 Young, C SW, Sec. 110, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,630 ft.
Jewell Oil Co.'s No. 1 Harrah, 330 ft. N and W, of W 40 ac., S 120 ac., E 240 ac., Sec. 163, Blk. 3, I.& G.N. Sur. ..... Spudding.
LeFlore Pet. Corp.'s No. 1 Wilson, 330 ft. N and E, Sec. 1, B.S.&F. Sur. ..... Drlg. 1,820 ft.
Lenix et al's No. 1 Bradford, 330 ft. N and E, W½ SE, Sec. 118, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,922 ft; 8,000,000 ft. gas 2,400 ft; 7,000,000 ft. gas 2,-740 ft.
Lyon et al's No. 1-A Morse, 330 ft. S and W, NW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... S.D. 2,205 ft.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W cor. SE, Sec. 200, Blk. B-2, H.&T.N. Sur. ..... S.D. 2,050 ft.
Magnolia Pet. Co.'s No. 1 Cubine, 330 ft. N and W, NE, Sec. 36, Blk. 25, H.&G.N.R.R. Sur. ..... 9,000,000 ft. gas 2,325-35 ft.; fishing 2,775 ft.
McAuley et al's No. 4 Morse, 330 ft. N and W, SE cor. NE, Sec. 2, Blk. 26, H.&G.N.R.R. Sur. ..... T.D. 1,740 ft.
Midwest Explin. Co. et al's No. 1 Waggoner, 1,320 ft. W, 330 ft. N, Sec. 173, Blk. 3, I.&G.N. Sur. ..... Fishing 400 ft.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ..... Spudded and S.D.
Oil Operators' No. 1 Bowers, 330 ft. N, 330 ft. E, Sec. 93, Blk. B-2, H.&G.N. Sur. ..... Show oil and gas 2,400-17 ft.; S.O. 3,036-55 ft.; first gas 2,483 ft., increase at 2,500 ft., 2,544 ft. and 2,950 ft; S.D. 3,238 ft.
Prairie Oil & Gas Co.'s No. 1 Carey, 372 ft. from W and 330 ft. from N of Sec. 114, Blk. 3, I.&G.N. Sur. ..... Rigged up and S.D.
Saulsbury et al's No. 1 Sheridan, 330 ft. S and E, W½ NE, Sec. 184, Blk. B-2, H.&G.N. Sur. ..... Drlg. 1,365 ft.
W. A. Scott's No. 1 Cobb, 330 ft. S, 425 ft. W, N½ SE, Sec. 184, Blk. 3, I.&G.N. Sur. ..... S.D. 2,270 ft.
Reynolds et al's No. 1 Webb, 330 ft. N, 330 ft. E, NW, Sec. 60, Blk. 25, H.&G.N.R.R. Sur. ..... S.D. 2,427 ft.
Stover and Shell's No. 1 Saunders, 990 ft. N, 330 ft. E, N 100 ac. of W 149 ac., Sec. 3, B.&B. Sur..... 2,000,000 ft. gas 2,670-75 ft.; T.D. 2,956 ft.; shot 60 qts.; no results; C.O.
Vulcan O. & G. Co.'s No. 1 Carpenter, 330 ft. N and W, W 80 ac., NW, Sec. 25, Blk. 25, H.&G.N.R.R. Sur. ..... S.D. 2,780 ft; T.P. 2,740 ft; 1,000 ft. oil in hole.
Wilson et al's No. 1 Heaston, 330 ft. S and W, Sec. 160, Blk. B-2, H.&G.N.R.R. Sur. ..... S.D. 2,845 ft; 2,500,000 ft. gas 2,-825 ft.
Wright Wilson, trustee's No. 1 Chapman, 175 ft. S and E lines, N½ NW, Sec. 69, Blk. 25, H.&G.N. Sur..... S.O. 2,685 ft; S.D. 2,816 ft; S.O. 2,803-16 ft; swbng.

HUTCHINSON COUNTY

Danciger O. & R. Co.'s No. 1 Cheatham, 330 ft. N and E, SW SE, Sec. 38, Blk. Y, A.&B. Sur. ..... Drlg. 2,662 ft.
Huber & Co.'s No. 1 Christian, 330 ft. E and 990 ft. N of SW¼ Sec. 33, Blk. Y, A.&B. Sur. ..... Rig.
Phillips Pet. Co.'s No. 1 Johnson-Trammel, 930 ft. N, 330 ft. W, SE cor. W½ NW, Sec. 38, Blk. Y ..... T.D. 3,250 ft.; plugging back.
Phillips Pet. Co.'s No. 1 Johnson-Mayer, 990 ft. N and 990 ft. W line, NE, Sec. 37, Blk. Y, A.&B. Sur..... S.D. 3,039 ft.
Phillips Pet. Co.'s No. 1 Johnson-Rudy, 330 ft. W, 330 ft. S, SW SW, Sec. 30, Blk. Y, A.&B. Sur. ..... T.D. 3,346 ft; P.B. 2,975 ft; S.D.
Phillips Pet. Co.'s No. 1 Vake (Hazel), 330 ft. N and W, Sec. 4, Blk. XO2, H.O.&B. Sur. ..... T.D. 1,495 ft.
Sinclair O. & G. Co.'s No. 1 Johnson Bros., 330 ft. N and E, NW, Sec. 32, Blk. Y, A.&B. Sur. ..... Driving 15-in. csg; T.D. 200 ft.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... Drlg. 1,900 ft.
Spurlock et al's No. 1-A Christian, 440 ft. S, 330 ft. W, NE cor. SE SE, Sec. 33, Blk. Y ..... Drlg. 2,680 ft.
Texas Interstate P. L. Co.'s No. 1 Bost, 660 ft. N and E, Sec. 9, Blk. Y-2, T.T.R.R. Sur. ..... Location.

LAMB COUNTY

Graham O. & G. Co. et al's No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... S.D. 4,408 ft.

LIPSCOMB COUNTY

Brown et al's No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... S.G. 3,760 ft.; S.D. 4,142 ft.; U.R. 6⅝-in. csg.
Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... S.D. 4,954 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft.; S.D. 4,167 ft.

MOORE COUNTY

Delmar Oil Co.'s No. 1 Jones, 990 ft. E, 330 ft. N, NW, Sec. 171, Blk. 3-T, T.&N.O. Sur. ..... Running 15-in. csg; T.D. 584 ft.
Fritch O. & G. Co.'s No. 1 Lee Bivins, C N 40 ac., N 160 ac., Sec. 4, George Mahan Sur. ..... S.D. 3,212 ft.
Gulf Prod. Co.'s No. 1 Kilgore, C SW, Sec. 22, Blk. P.Mc., E.L.R.R. Sur. ..... Gas estimated 15,000,000 ft. 3,050-60 ft; T.D. 3,645 ft; to complete as gasser.
Shamrock O. & G. Co.'s No. 1 Shory, 330 ft. N and W, NE, Sec. 187, Blk. 3-T, T.&N.O. Sur. ..... Set 8-in. csg; T.D. 2,820 ft.
Texas Interstate P. L. Co.'s No. 1 Zotness, C NW, Sec. 55, Blk. 6-T, T.&N.O. Sur. ..... Location.
Texas P. L. Co.'s No. 1 Sneed, Jr., C NE, Sec. 46, Blk. 6-T, T.&N.O. Sur. ..... Location.

MOTLEY COUNTY

Explin. Co.'s No. 6 Matador, 330 ft. N line, 330 ft. E line, Sec. 132, Blk. M ..... Drlg. 4,075 ft.
Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G. B.&B. Sur. ..... S.D. 580 ft.

POTTER COUNTY

Texas Interstate P. L. Co.'s No. 1 Masterson, C, Sec. 37, Blk. B-10, E.L.R.R. Sur. ..... Drlg. 565 ft.

RANDALL COUNTY

W. A. Patterson's No. 1 Palo Duro, Sec. 60, Blk. K-14.... S.D. 1,250 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. A-5 ..... Shot 10 qts. 5,270-93 ft.; S.O. 5,-288 ft.; S.D. 5,992 ft.

WHEELER COUNTY

Anderson's No. 1 Reneau, C SW NE, Sec. 98, Blk. 23, H.&G.N. Sur. ..... Drlg. 1,350 ft.
Dunaway Bros.' No. 1 Worley, 330 ft. S and W, NE cor. NW, Sec. 39, Blk. 24, H.&G.N. Sur. ..... T.D. 2,230 ft.; 15,000,000 ft. gas at 2,025-2,230 ft.
Johnson et al's No. 2 Hicks, 890 ft. W, 990 ft. S, Sec. 49, Blk. 17, H.&G.N. Sur. ..... S.D. 825 ft.
Lone Star Gas Co.'s No. 1 Brown, C NW NE, Sec. 53, Blk. 23, H.&G.N.R.R. Sur. ..... Location.
Lone Star Gas Co.'s No. 2 Hicks (Martin), C NW NE, Sec. 52, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 1,200 ft.
Lone Star Gas Co.'s No. 1 Ridinger, C NW NW, Sec. 65, Blk. 17, H.&G.N. Sur. ..... Rig on ground.
McGee et al's No. 1 Jolly, C NE, Sec. 15, Blk. A-8, H.&G.N. Sur. ..... S.D. 500 ft.
Murphy's No. 1 Pike, cen. NE¼ of SW¼ Sec. 50, Blk. 17, H.&G.N. Sur. ..... Drlg. 1,500 ft.
Wischkamper et al's No. 1 Kiser, 330 ft. N and E of SW¼ Sec. 33, Blk. 17, H.&G.N. Sur. ..... S.D. 190 ft; running 12½-in. csg.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 73)

Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, E.&T.C. Sur., elev. 2,750 ft. ..... Shut down 3,278 ft.; show lime oil 3,275-78 ft.

CONCHO COUNTY

Beesley et al's No. 1 S. Waring Est., 1,320 ft. from S and E of A. T. Robinson Sur., Abst. 2,120 ..... Machine.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor., G. Emmig Sur. 130, 6 mi. W of Paint Rock ..... Shut down 735 ft.

CRANE COUNTY

Cranfill Bros. and Gulf's No. 1 J. B. Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land ..... Tested 3,519,000 ft. gas 2,868 ft.; drlg. 3,195 ft.
C. C. Duffey's No. 1 Cowden Bros., 580 ft. NE and 1,333 ft. SE of W cor., Sec. 31, Blk. 2, H.&T.C. Sur. .. Fishing; total depth 1,997 ft.
Sun Oil Co.'s No. 1 First National Bank, C Sec. 6, J. H. Gibson Sur. ..... Location.

CROCKETT COUNTY

Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur. ..... Spudded and shut down.
Lewis & Daniels' No. 1 Pecos River bed, 19 yds. S and 37° E of NW cor., Sec. 33, Blk. 1, I.&G.N. Sur. ..... Shut down 1,407 ft.
Magnolia Pet. Co.'s No. 1 Hoover, 2,310 ft. from N and 330 ft. from E of Sec. 12, Blk. 1, G.C.&S.F.R.R. Sur... Drlg. 4,630 ft.
G. Schaul's No. 1 Bouscour Est., 330 ft. N and 2,310 ft. from W of Sec. 27, Blk. HH, G.C.&S.F. Sur. ..... Rigging up.

CULBERSON COUNTY

Grisham & Hunter Corp.'s No. 1 Garren, 2,310 ft. from S and 330 ft. from E of Sec. 18, Blk. 89, P.S.L. Sur. ... Shut down 2,514 ft.
Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W, Sec. 20, Blk. 82 ..... Small show oil 1,331 ft.; shut down 2,907 ft.
Kornrumpf et al's No. 1 Garren, 330 ft. S and W, Sec. 15, Blk. 79, Public School Land ..... Drlg. 650 ft.
West Coast Oil & Exploration Co.'s No. 1 McGregor, C NW, Sec. 14, Blk. 81 ..... Slight show oil 740 ft.; shut down 875 ft.; may abandon.
Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E, Sec. 1, Blk. 97, Public School Land ..... Oil show 2,528 ft.; shut down 3,508 ft.

ECTOR COUNTY

Amerada and Skelly's No. 1-B University, 990 ft. from S and 440 ft. from E line, Sec. 2, Blk. 35, University Land ..... Drlg. 2,865 ft.
C. P. Davis et al's No. 1 Hendricks, C SW, Sec. 46, Blk. 42, Twp. 2s, T.&P.R.R. Sur. ..... Shut down 4,012 ft.
Independent Oil & Gas Co.'s No. 1 Eidson, 1,250 ft. S and 2,144 ft. E of NW cor., Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur. ..... Shut down 5,800 ft.; fishing for tools; 1,100 ft. oil in hole.
H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G.M.M.Br.&A. Sur. ..... Shut down 511 ft.
T. P. Coal & Oil Co.'s No. 1 McKenzie, 1,650 ft. from S and 330 ft. from E of Sec. 282, Blk. 45, Twp. 2s, T.&P. Sur. ..... Shut down 3,870 ft.; swabbing dry.
Transcontinental Oil Co.'s No. 1 University, 1,650 ft. from N and 440 ft. from E line of Sec. 39, Blk. 35, University Land ..... Fishing 3,553 ft.; show gas 3,169 ft.
R. R. Penn et al's No. 1 Goodman et al, 2,640 ft. N and 330 ft. W of SE cor., Sec. 27, Blk. 44, T.&P.R.R. Sur... Drlg. 1,075 ft.
Simms Oil Co.'s No. 3 University, 2,310 ft. from N and 330 ft. from W of Sec. 1, Blk. 35 ..... Rig.
Skelly Oil Co. and Republic Prod. Co.'s No. 1 McKenzie, 990 ft. from S line and 330 ft. from E line of Sec. 28, Blk. 45, Twp. 2s, T.&P. Sur. ..... Running 6⅝-in. casing; total depth 3,500 ft.
Sunray Oil Co. et al's No. 1 Jones, 2,330 ft. from N and 440 ft. from E of Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur... Drlg. 3,065 ft.

The Texas Co. et al's No. 8 Connell, 330 ft. from S and 440 ft. from E of Sec. 2, Blk. B-16 ..... Location.

EL PASO COUNTY

Lane-The Texas Company's No. 1 Malone, 2,110 ft. from SW and NW of Sec. 46, J. M. Day Sur. ..... Drlg. 2,830 ft.

FISHER COUNTY

Cranfill & Reynolds' No. 2 Barrett, 330 ft. from N and W of NE, Sec. 199, B.B.B.&C. Sur. ..... Spudding.

Cranfill & Reynolds' No. 1 Cooper et al, 330 ft. from S and 990 ft. from W of Sec. 198, B.B.B.&C. Sur. ..... Location.

Cranfill & Reynolds' No. 2 Flannigan, 330 ft. from S and E of W half of Sec. 200, B.B.B.&C.R.R. Sur. ... Rig on ground.

Mid-West's No. 1 Decker, 330 ft. from S and W of W 80 ac. of N 160, Sec. 8, Richardson Sur. ..... Drlg. 300 ft.

Roeser & Pendleton's No. 1 Steele, 660 ft. from N and 440 ft. from W of N half of SW, Sec. 210, B.B.B.&C. Sur. ..... Drlg. 1,300 ft.

The Texas Company's No. 1-A Teagarden, 150 ft. from S and 420 ft. from E of Sec. 8, Richardson Sur. ..... Drlg. 1,345 ft.

GAINES COUNTY

Humble Oil & Ref. Co.'s No. 1 Caswell, 660 ft. S and E of NW cor. of Sec. 23, Blk. A-27, Public School Land.. Drlg. 1,780 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 6, H.&G.N. Sur. ..... Spudded and shut down.

Richard's No. 1 Stoker, 330 ft. from N and W, Sec. 2, Blk. 2, G.H.&H. Sur. ..... Drlg. 1,925 ft.

GLASSCOCK COUNTY

Associated Oil Co.'s No. 1 Coffee, 2,310 ft. E and 330 ft. from S of Sec. 27, Blk. 33, Twp. 2s, T.&P. Sur. ..... Drlg. 890 ft.

California Co.'s No. 1 Jones, 330 ft. S from N and E lines, Sec. 25, Blk. 33, Twp. 2s, T.&P. Sur. ..... Testing show oil 2,516-56 ft.; bailed 5 gals. oil and 5 gals. salt water; drlg. 2,742 ft.

California Co.'s No. 2 Baker, 2,970 ft. S and 1,650 ft. E. parallel to section lines of NW cor., Sec. 23, Blk. 32, Twp. 2s, T.&P. Sur. ..... Drlg. 1,450 ft.

Kirby Pet. Co. et al's No. 2 Phillips, 990 ft. S and 2,310 ft. E of NW cor., Sec. 23, Blk. 33, Twp. 2s, T.&P. R.R. Sur. ..... Shut down 2,264 ft.; 1,800 ft. oil in hole; fishing for tools.

Kirby Pet. Co. et al's No. 3 Phillips, 1,650 ft. S and 2,310 ft. E of NW cor., Sec. 23, Blk. 33, Twp. 2s, T.&P.R.R. Sur. ..... Shut down 2,300 ft.; 1,900 ft. oil in hole; fishing for tools.

Timberlake & Snyder's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor., Sec. 7, Blk. 34, Twp. 3s, T.P. Sur.... Total depth 2,956 ft.; drlg. deeper.

World Oil Co.'s No. 3-C McDowell, 2,310 ft. from S and W of NE cor., Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur.... Shut down.

World Oil Co.'s No. 1 Edwards, 330 ft. from S line and 2,310 ft. from W line of Sec. 13, Blk. 84, Twp. 2s, T.&P. Sur. ..... Drlg. 1,770 ft.; top salt 1,490 ft.

HOWARD COUNTY

Cosden Oil Co.'s No. 6 Roberts-A, 200 ft. N and E of SW cor., Sec. 129, Blk. 29, W.&N.W.R.R. Sur. ..... Sulphur water 1,433-46 ft.; shut down 1,456 ft.

McGinley-Sigler's No. 1 Hyman-C, 330 ft. N and 990 ft. W SE cor., Sec. 93, Blk. 29, W.&N.W.R.R. Sur. ..... Location.

Merriwether's No. 1 Smith, 150 ft. from S, 2,490 ft. from W, Sec. 45, Blk. 33 ..... Shut down 2,540 ft.

Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ..... Shut down 261 ft.

Sinclair O. & G. Co.'s No. 1 Montgomery et al, 2,310 ft. from N and W of Sec. 11, Blk. 30, Twp. 1s, T.&P. Sur. ..... Total depth 2,569 ft.; top pay 2,452-64 ft.; est. 40 bbls. on pump; shot 230 qts. from 2,452-2,570 ft.; filled up 1,700 ft. in 10 hrs. after shot.

HUDSPETH COUNTY

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor., Sec. 19, Blk. E ..... Shut down 4,697 ft.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW, Sec. 12, Blk. 18 ..... Fishing 3,155 ft.

IRION COUNTY

Crawford Oil Co.'s No. 1 Williams, 450 ft. from N, 150 ft. from W, Subd. 8 ..... Shut down 1,105 ft.

Cromwell et al's No. 1 Tankersley, 150 ft. from N and 210 ft. from W of E half of Sec. 1,230, G.C.&S.F. Sur... Machine.

Kingwood Oil Co. et al's No. 1 J. D. Suggs, SE NW SE, Sec. 19, Blk. 7, H.&T.C. Sur. ..... Total depth 7,818 ft.; plugged back to 6,800 ft.; shot 30 qts. from 6,750-80 ft.; swabbed 3 bbls. oil daily.

Cromwell et al's No. 3 Nutt, 904 ft. from N and 116 ft. from W of Blk. 6, Gonzales Co. School Land ..... Drlg. 300 ft.

P. H. Williams' No. 1 Ash, C of Sec. 20, Washington County ..... Show oil 7,931 ft.; shut down 8,-890 ft.; may drill deeper.

Webb et al's No. 1 Nutt, 150 ft. from S and 116 ft. from W of Blk. 5, Gonzales Co. School land ..... Machine.

Straughan and Texannati Oil Co.'s No. 1 Nutt, 150 ft. N and E of NW NW, Blk. 6, Gonzales County School Land ..... Drlg. 1,050 ft.

JONES COUNTY

Gibson & Johnson's No. 1 Hudspeth, 1,125 ft. from N and 483 ft. from E of Sec. 22, Edward Miles Sur. .... Drlg. 1,050 ft.

Mid-Tex Oil Co.'s No. 1 King, 330 ft. E of river and 800 ft. S of N line, Sub. 1, Secd. 197, M. Bueno Sur... Topped sand 1,980 ft.; pumped 9 bbls. oil from sand 1,961-65 ft.; drlg. 2,010 ft.

Shabeen et al's No. 1 King ..... 800 ft. fluid in hole; shut down 2,204 ft.; top pay 2,061 ft.; cleaning out after shot.

Shabeen et al's No. 1 King, 6,750 ft. from N and 150 ft. from E of M. Bueno Sur. No. 197. ..... Drlg. 540 ft.

KENT COUNTY

White & Smith's No. 1 Pursley estate, 1,320 ft. from E and 2,640 ft. from S of Sec. 8, Blk. H, H.&T.B. Sur... Shut down 273 ft.

LAMB COUNTY

Graham Oil & Gas Co.'s No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... Shut down 4,428 ft.

LOVING COUNTY

Dixie and Phillips Pet.'s No. 1 Johnson, 1,320 ft. from N and E of Sec. 38, Blk. 54, Twp. 2s, T.&P. Sur. .... Drlg. 2,610 ft.

Eppenauer et al's No. 1 Allen, 2,310 ft. from NE and NW lines Sec. 90, Blk. 1, W.&N.W. Sur. ..... Location.

Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,383 ft.

Hadlock et al's No. 2 Russell, 1,650 ft. SW of NE line, 2,310 ft. NW of SE line, Sec. 80, Blk. 1, W.&N.W. R.R. Sur. ..... Fishing 740 ft.

Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. Sur. ..... Spudded 140 ft.; shut down.

Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 83, Blk. 33, H.&T.C.R.R. Sur... Rigged up.

Miller et al's No. 1 Chapman, 225 ft. from NW and 285 ft. from SW line, Sec. 71, Blk. 1, W.&N.W. Sur. ..... Rigged up and shut down.

Rush et al's No. 1 Wheat, 1,650 ft. from NW and 330 ft. from SW of Sec. 85, Blk. 1, W.&N.W. Sur. ..... Location.

California Co.'s No. 2 Reagan & McElvain, 440 ft. from NW and SW Sec. 84, Blk. 1, W.&N.W. Sur. .... Location.

LYNN COUNTY

Lubewell Oil Co.'s No. 1 May, 2,310 ft. S, 2,310 ft. W, Sec. 10, Blk. 7, E.L.R.R. Sur. ..... Shut down 190 ft. for casing.

George McCamey's No. 1 Edwards, 165 ft. N and E, Sec. 5, Blk. 2, L.S.&W. Sur. ..... Shut down 5,040 ft.

MENARD COUNTY

Panhandle Ref. Co.'s No. 2 Eckhart, 1,320 ft. from W and 1,320 ft. from S of Sec. 10, Blk. 2, T.W.N.G. Sur. ..... Drlg. 1,235 ft.

Priest's No. 1 Sorrel, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. ..... Shut down 2,015 ft.

MIDLAND COUNTY

Pure Oil Co.'s No. 1 Hutt, 2,310 ft. from N and 330 ft. from E of Sec. 14, Blk. 38, Twp. 4s, T.&P. Sur. ..... Drlg. 3,636 ft.

MITCHELL COUNTY

Gant & Teas' No. 1 Handley, 330 ft. S and W parallel to section lines of NE cor. of SE, Sec. 12, Blk. 28, Twp. 1n, T.&P. Sur. ..... Drlg. 1,650 ft.

Morrison et al's No. 2 Morrison, 2,390 ft. from N and 660 ft. from E of Sec. 31, Blk. 28, Twp. 1n, T.&P. R.R. Sur. ..... Total depth 3,112 ft.; top pay 3,038 ft.; 1,000 ft. oil in hole; swabbing 40 bbls. in 24 hrs.

Morrison et al's No. 1 Poe et al, 660 ft. S and 1,980 ft. W parallel to section lines of NE cor., Sec. 8, Blk. 27, T.&P. Sur. ..... Spudded 10 ft. and shut down.

PECOS COUNTY

Buell & Hagan et al's No. 1-A Pecos Valley Oil Co., 150 ft. from NW and 1,470 ft. from NE of Sec. 22, Blk. 10, H.&G.N. Sur. ..... Drlg. 300 ft.

Crosby Prod. & Ref. Co.'s No. 1 Cordova, 330 ft. from N and E of S 320 ac., Sec. 11, H.&G.N. Sur. ..... Shut down 2,080 ft.

Fisher & Lowrie's No. 1 Webb, C Sec. 3, Blk. 203, Tilman & Walters Sur. ..... Drlg. 2,550 ft.; top salt 2,455 ft.

Hayes et al's No. 1 Lea, C NW of NE, Sec. 9, Blk. 106, T.&St. L. Sur. ..... Location.

Humble Oil & Ref. Co.'s No. 1 Kokernot, 1,320 ft. from N line and 1,467 ft. from W line of Sec. 227, Blk. 10, G.H.&S.A. Sur. ..... Drlg. 725 ft.

Russman Oil Co.'s No. 1 Esters, 960 ft. from N and 300 ft. E, Sec. 83, Blk. OW, T.M.R.R. Sur. ..... Shut down 1,680 ft.

Independent Oil & Gas Co.'s No. 1 Jasper County School Land, 1,160 ft. from SE line, 160 ft. from NE line, Sec. 21, Blk. 10, H.&G.N.R.R. Sur. ..... Shut down 1,585 ft.; 25,000,000 ft. gas 1,555 ft.; spraying 2 bbls. day.

Martin A. Meyer et al's (formerly Mauch & Kroger) No. 1 Holmes, S half SW, Sec. 5, Blk. 178, T.C. Sur. ..... Sulphur water 2,698 ft.

Messenger et al's No. 2 Byrne, 2,490 ft. from NE and SE of Sec. 54, Blk. 10, H.&G.N. Sur. ..... Drlg. 385 ft.

J. R. Miller et al's No. 1 Bennett, 359 ft. W from CWL, Sec. 1, Blk. 119, G.C.&S.F. Sur. ..... Shut down 315 ft.; to run casing.

J. D. O'Mara's No. 1 Bennett, Sec. 592, 1,460 ft. from S, 150 ft. from E, G.&C.S.F. Sur. ..... Top pay 1,089 ft.; 700 ft. fluid in hole; shut down 1,190 ft.

J. D. O'Mara's No. 1 Streety, C of Sec. 1, W. P. Howard Sur. ..... Show oil 1,785 ft.; shut down 2,200 ft.

Oregon Oil Corp.'s No. 2 Yates, 150 ft. from S and W of Sec. 58, Blk. 1, I.&G.N. ..... Drlg. 830 ft.; top salt 710 ft.

Peren Oil Co.'s No. 2 Eaton, C of E of W, Sec. 27, Blk. 3, H.&T.C. Sur. ..... Shut down 1,335 ft.

Perren's No. 1 Jackson, 200 ft. from NW and SW of Sec. 28, Blk. 3, H.&T.C. ..... Spudded and shut down.

R. W. Porpus et al's No. 1 State Land, 330 ft. S and W lines of NE, Sec. 28, Blk. OW, T.C.R.R. Sur. ..... Spudded and shut down.

Phillips Pet. Corp.'s No. 3 Monroe, 3,860 ft. from N and 660 ft. from E, Sec. 29, Blk. 194, G.C.&S.F. ..... Cellar.

Pure Oil Co.'s No. 1 Harrison, 2,310 ft. from N and 330 ft. from W of Sec. 203, Blk. 3, T.&P. Sur. ..... Moving in rig.

Riser & White's No. 1 Riser, 2,297 ft. from S and 997 ft. from E of Sec. 24, Blk. 12, H.&G.N. Sur. ..... Location.

Sides & Cloyd's No. 2 Blackstone & Slaughter, C NW of Sec. 34, Blk. A-2, T.&C.R.R. Sur. ..... Shut down 2,065 ft.

Southern Crude Oil Pur. Co.'s No. 2 Eaton, 2,310 ft. from SW and SE, Sec. 35, Blk. 3, H.&T.C. Sur. ..... Drlg. 678 ft.

California Co.'s No. 1 Fromme, 330 ft. from NE and NW Sec. 106, Blk. 10, H.&G.N. Sur. ..... Location.

The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor., Sec. 9, Blk. 131, T.&S.T.L. Sur. ..... Drlg. 3,373 ft.

Transcontinental Oil Co.'s No. 1 University, 1,980 ft. N and E of SW cor., Sec. 18, Blk. 18, University Land.. Shut down 4,920 ft.

Transcontinental Oil Co.'s No. 2 Perry, 330 ft. from N and E of Sec. 6, Blk. Z, T.C.Ry. Sur. ..... Shut down 925 ft.

W. F. Walsh et al's No. 1 Scharbaur Cattle Co., 330 ft. S and 990 ft. E from C, Sec. 16, Blk. 136, T.&St. R.R. Sur. ..... Drlg. 2,147 ft.

Warner's No. 1 Webb, 2,550 ft. from NW and 6,100 ft. from NE of Sec. 311, Abst. 756, C. McGinley Sur. ..... Location.

PRESIDIO COUNTY

L. C. Brite's No. 4 Brite, 271 ft. from N and 1,188 ft. from E lines of Sec. 245, Blk. 4 ..... Drlg. 1,650 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor., Sec. 1, Blk. 2, University Land.. Top pay 2,903 ft.; top pay 6,807 ft.; flowing 320 bbls. oil with 8,600,000 ft. gas; total depth 8,668 ft.; averaged 421 bbls. day for 7 days.

Beesley et al's No. 1 Sawyer Cattle Co., 1,320 ft. from N and 3,960 ft. from E, Sec. 8, J. G. Robinson Sur., elevation 2,586 ft. ..... Drlg. 500 ft.

Big Lake Oil Co.'s No. 4-C University, 1,120 ft. from N and 1,096 ft. from E of Sec. 1, Blk. 2 ..... Showing oil and gas at 8,220 ft.; total depth 8,220 ft.; flowing aver. 125 bbls. daily; to deepen.

Big Lake Oil Co.'s No. 5-C University, 625 ft. from S and 250 ft. from W of Sec. 25, Blk. 9 ..... Drlg. 240 ft.

Texon Oil & Land Co.'s No. 3-B University, 2,240 ft. from S, 920 ft. from W, Sec. 36, Blk. 9 ..... Drlg. 8,300 ft.

Westyde Investment Co.'s No. 1 Scott, 1,280 ft. N and 1,320 ft. from W, Sec. 177, Blk. 1, T.&P. Sur. ..... Drlg. 1,465 ft.; top salt 1,250 ft.

REEVES COUNTY

H. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. Sur. ..... Shut down 380 ft.

Black & Fink's No. 1 Brooks, 1,980 ft. N and 660 ft. W, Sec. 16, Blk. 59 ..... Shut down 1,360 ft.; show oil 1,320 ft.; cleaning out after two shots; filled up 200 ft. with oil.

Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur... Show oil 3,410 ft.; shut down 3,575 ft.

California Co.'s No. 1 Kloh & Rumsey, 1,650 ft. from S and E of Sec. 13, Blk. 54, Twp. 4, T.&P. Sur. ..... Drlg. 1,410 ft.

RUNNELS COUNTY

Gibson & Johnson's No. 2 Serratt, 2,310 ft. from S and 1,650 ft. from E of Sec. 150, E.T.R.R. Sur. ..... Derrick.

George W. Boyce's No. 1 Lang, 2,310 ft. N, 6,900 ft. E, Sec. 262 ..... Show oil 2,023 ft.; shut down 2,607 ft.; running 6⅝-in. casing.

SCHLEICHER COUNTY

Delmar Oil Co.'s No. 1 O'Harrow, C of NW, Sec. 56, Blk. 1, G.H.&S.A.R.R. Sur. ..... Drlg. 3,455 ft.

Interstate's No. 1 Whitten, 1,320 ft. from N and W, Sec. 35, Blk. LL, T.C.R.R. Sur. ..... Show gas 6,300-21 ft.; show oil 6,321-37 ft.; bails 5 to 10 gals. oil every 3 to 5 hrs.; drlg. 6,740 ft.; no more shows or increases.

Teas & Gant's No. 1 Allison, 1,320 ft. N and E of SW cor. of Sec. 37, Blk. K, G.H.&S.A.R.R. Sur. ..... Shut down 1,880 ft.

Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C.R.R. Sur. ..... Location.

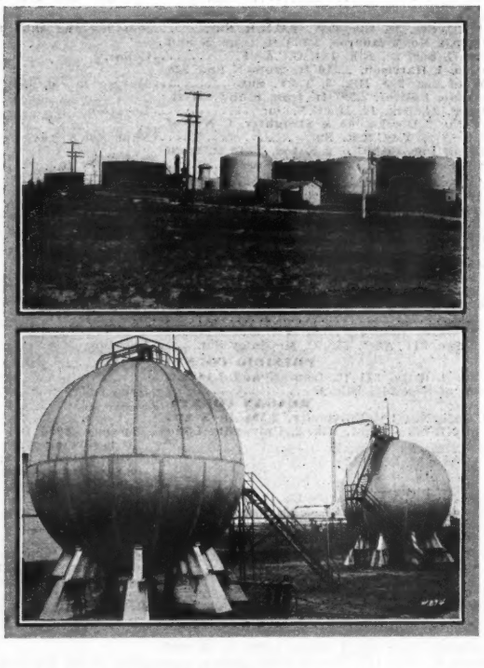
PITTSBURGH DES MOINES Steel Storage Tanks

PITTSBURGH-DES MOINES PDM TANKS PITTSBURGH

Any Size from 75 gallons to 80,000 barrels.

Erected Anywhere by trained Pittsburgh-Des Moines field crews.

Promptly because tanks of standard design are carried in stock, completely fabricated and ready for immediate shipment, at both Pittsburgh and Des Moines shops.



The Humble Oil & Refining Company called on Pittsburgh-Des Moines to erect the above special spherical gasoline storage tanks, each of 2500 barrels capacity, at their Baytown, Texas, plant. Standard Pittsburgh-Des Moines oil storage tanks are shown in the upper half of the photo.

May we quote on your oil and gasoline storage requirements?

Pittsburgh-Des Moines Steel Co.

13 Neville Island, Pittsburgh — 1225 Praetorian Bldg., Dallas — 915 Tuttle St., Des Moines

New York San Francisco Seattle Chicago Atlanta

George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A.R.R. Sur. ..... Fishing 4,918 ft.

SCURRY COUNTY

Byrd & Harmon's No. 1 Murphy, Jr., 320 ft. from N and E of Sec. 114, Blk. 97, H.&T.C. Sur. ..... 2,000 ft. oil in hole; total depth 3,320 ft.; fishing bit; top pay 1,750 ft.; swabbed 106 bbls. in 5 hrs.; filled up 600 ft. in 20 hrs. after swabbing.

Camp Spring Oil & Ref. Co.'s No. 3 Guinn, 1,300 ft. from S, 300 ft. from E, Sec. 12, Blk. 3, H.&T.C.R.R. Sur. ..... Shut down 4,367 ft.

I. B. Mimms et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C.R.R. Sur. ..... Spudded and shut down.

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Drlg. up underreaming lugs; total depth 4,400 ft.

Transcontinental Oil Co.'s No. 1 Peckham, 330 ft. from S and W of R. N. Miller Sur. ..... Drlg. 2,370 ft.

SUTTON COUNTY

Independent Oil & Gas Co.'s No. 1 Wilson, Sec. 30, Blk. A, 1,650 ft. from N, 2,310 ft. from W ..... Location.

TAYLOR COUNTY

Clark et al's No. 1 Kendall, 250 ft. from N and W of farm in Willis Avery Sur. ..... Spudded and shut down.

Condor Pet. Co.'s No. 1 Stoker, C of NW, Sec. 220, Blk. 64, H.T.C.C.R.R. Sur. ..... Drlg. 3,009 ft.

Eastland Oil Co. et al's No. 1 Teaff, 150 ft. from N and W of N 109-acre farm of 219-acre tract, W. Avery Sur. ..... Drlg. 1,335 ft.

Gibson & Johnson's No. 1 Bingham, 330 ft. N and E of SW cor. their 270.8-acre tract, Sec. 31, Guadalupe County School Land ..... Total depth 2,412 ft.; fishing for casing.

John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor., Sec. 46, Lunatic Asylum Land ..... Show oil 4,917 ft.; shut down 5,933 ft.

Hucony Oil Co. et al's No. 1 Richie, C SE Sec. 10, Blk. A, S.P.R.R. Sur. ..... Shut down 1,080 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ..... Shut down 1,985 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C, Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.

Miller Bros.' No. 1 Allison & Burke, C NW cor., Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.

Mrs. J. B. McPhees' No. 1 Sam Belt, C, Sec. 17, Blk. D-7, E.L.R.R. Sur. ..... Shut down 880 ft.; moved off machine.

Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F.R.R. Sur. ..... Shut down 4,350 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ..... Shut down 640 ft.

TERRY COUNTY

Atlantic et al's No. 1 Carlisle, 990 ft. from S and E of Sec. 58, Blk. E, E.L.&R.R. Sur. ..... Shut down 3,322 ft.

TOM GREEN COUNTY

Cosden Oil Co.'s No. 1 William Anson, 2,310 ft. S, 330 ft. W of NE cor., Sec. 20, Blk. 24, H.T.C.R.R. Sur. ..... Spudded.

Ellis' No. 3 Lewis, 1,350 ft. S and 450 ft. E of SW cor. Jas. Webb Sur. 77, but in Albert Black Sur. 75 ..... Shut down 485 ft.; show oil 390 ft.

Fitzgerald & Taliaferro's No. 1 Bennett, C SW, Sec. 1,628, E. H. Dinger Sur. ..... Plugged back to 2,405 ft. to straighten hole; shut down 2,447 ft.

Phillips Pet. Corp.'s No. 1 Gulden, 1,250 ft. from N and 1,583 ft. W of Sec. 77, James Webb Sur. ..... Fishing 2,560 ft.

E. W. Wiley et al's No. 1 Maier, 200 ft. from E, 110 ft. from N, Sec. 6, Blind Asylum Land ..... Show oil 418-20 ft.; total depth 632 ft.

UPTON COUNTY

Cordova Union Land Co.'s No. 1 fee, 330 ft. from S and E line of Sec. 1, Blk. 1, M.-K.-T.R.R. Sur. ..... Location.

Eppenauer Drlg. Co.'s No. 3 Chaney, 1,147 ft. from N and 990 ft. from W, Sec. 18, Blk. 3, M.-K.-T. Sur. .. Drlg. 500 ft.

VAL VERDE COUNTY

A. Bluhm's No. 1 Yoast, 1,760 ft. N, 600 ft. W of SE cor., Sec. 31, Blk. 3, I.&G.N. Sur. ..... Shut down 760-804 ft.; half full sulphur water.

Independent Operators' No. 1 Whitehead, SE SE, Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,363 ft.

O. O. Owen's No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,700 ft. gas; drlg. by tools 5,757 ft.

Phantom Oil Co.'s No. 1 Ingram, 175 ft. W of E line and 300 ft. N of S line, Sec. 32, Blk. D-8, E.L.&R.R. Sur.. Show oil 1,525 ft.; fishing 3,035 ft.

Valvert Oil Corp.'s No. 1 Bassett, C NE Sec. 47, Blk. Y.. Shut down 4,009 ft.

WARD COUNTY

Atlantic and Delmar's No. 7 Hayzlett, 2,070 ft. from NW and 1,878 ft. from SW, Sec. 17, Blk. 5, H.&T.C. Sur.. Drlg. 1,960 ft.

Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW, Sec. 18, Blk. 5, H.&T.C. Sur.. Show gas 1,960-70 ft.; filling up with sulphur water 2,520-27 ft.; salt water 2,545 ft.; plugged back to 2,477 ft.

R. F. Owens' No. 1 Johnson, 100 ft. from NE and 1,100 ft. from SE of Sec. 8, Blk. 33, H.&T.C.R.R. Sur. ..... Shut down 380 ft.

Penn and Atlantic's No. 1-B Pecos Mercantile Co., 990 ft. from NW and 2,310 ft. from NE, Sec. 16, Blk. 34, H.&T.C. Sur. ..... Location.

Tex-Oil Prod. Co.'s No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 152, Blk. 34, H.&T.C.R.R. Sur. ..... Shut down 5,077 ft.

Richardson's No. 3 O'Brien, 322 ft. from N and 1,680 ft. from W of Sec. 5, Blk. F ..... Drlg. 1,710 ft.; top salt 1,142 ft.

Shipley et al's No. 5 Hayzlett, assume common line Secs. 16 and 17, is N and S, 220 ft. S and 1,910 ft. W, Sec. 17, Blk. 5 ..... Standard rig.

Shipley et al's No. 1 Monroe, 330 ft. SE SW, Sec. 3, Blk. 1 ..... Drlg. 1,155 ft.

J. E. Smith's No. 1 Clement, 152 ft. SW of NE line and 153 ft. SE of NW line, Lot 7, Sec. 7, Blk. 32, H. & T.C.R.R. Sur. ..... Show gas 2,130 ft.; drlg. 2,223 ft.; show gas 2,130 ft.

Sturm & Paine's No. 1 Cummins, 748 ft. from NE and 155 ft. from NW of Sec. 7, Blk. 32, H.&T.C.R.R. Sur.. Total depth 2,350 ft.; shut down.

Sun Oil Co.'s No. 1 Sealy, 330 ft. from N and E of Sec. 88, Blk. F, G.M.M.B.&A. Sur. ..... Shut down 2,590 ft.

WINKLER COUNTY

A. W. Phillips' No. 2 Brown et al, 2,000 ft. S and W of NE, Sec. 4, Blk. B-5, Public School Land ..... Top salt 1,300 ft.; shut down 2,832 ft.; show oil 2,775-85 ft.

Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ..... Shut down 3,880 ft.

Shell and The Texas Company's No. 1-B Cowden, 600 ft. from S and W of Sec. 39, Blk. B-5, Public School Land ..... First gas 2,290 ft.; increase 2,580 ft.; total 3,500,000 ft. gas (estimated); moving in rotary.

Shell et al's No. 8 Scarborough, 1,020 ft. from N and 1,650 ft. from E of Sec. 2, Blk. 77, Public School Land ..... Shut down 3,391 ft.; swabbed 28 bbls. June 4; to put on pump.

Simms Oil Co.'s No. 1 Sealy, C of SE Sec. 49, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 451 ft.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 54)

CONCORDIA PARISH

A. C. Glassell's No. 1 Pittsfield Plantation, N 9°, E 1,320 ft., SW cor., Sec. 41-8-10 ..... Blew out bet. 1,392-1,450 ft.; est. 1,000,000 ft. gas; bridged, arranging to recement 8¼-in 1,370 ft.

Joe Marr et al's No. 1 Maxwell, C, Sec. 35-3n-8e ..... S.D. 2,820.

DE SOTO PARISH

Benson Oil Co.'s No. 1 Harris, Sec. 6-10-13 ..... Tested dry; show gas; W.O. 2,650 ft.

Joe Burnham et al's No. 1 Mary Hood, 320 ft. W, 201 ft. S, NE cor. SE NE, Sec. 3-11-14 ..... Location.

Bud Harrell's No. 1 Horton, 450 ft. E, 150 ft. N, SW cor., Sec. 4-11-11 ..... Began drlg. Apr. 30.. cmtd. 10-in. 130 ft; S.D. 350 ft.

H. L. Hunt's No. 1 Furman, Sec. 5-14-13 ..... Drlg. chalk 1,760 ft.

Odell & Lawton's (was L. A. Crump's) No. 1 Harris, 300 ft. N, 300 ft. E, SW cor. NW SE, Sec. 11-13-14.. Cmtd. 6-in. 2,743 ft.; drld. plg. and reaming down; blew out while coming out with D.S.; est. 15,000,000 to 20,000,000 ft. gas and hvy. spray S.W. with 1,600 ft. D.S. in hole; T.D. 3,150 ft.

R. O. Roy's No. 1 Nelson, 660 ft. S, 660 ft. E, NW cor., Sec. 36-15-13 ..... Began drlg. June 8; drlg. 175 ft.

EAST CARROLL PARISH

La. Gas & Fuel Co.'s No. 1 Hicks, 1,320 ft. N, 759 ft. W, SE cor., Sec. 12-19-10 ..... Began drlg. June 10; drlg.

FRANKLIN PARISH

Davis et al's No. 1 Moore, 600 ft. W, 200 ft. S, NE cor., Sec. 12-11-6 ..... S.D. 1,430 ft.

JACKSON PARISH

El Dorado Chief O. & G. Co.'s No. 1 Sou. Advance Paper Bag Co., 225 ft. N, 275 ft. E, SW cor. SW NE, Sec. 35-15-4 ..... Drlg. 1,100 ft.

LINCOLN PARISH

Ark. Fuel Oil Co.'s No. 1 Lewis & Co., 300 ft. N, 300 ft. W, SE cor. NW SE, Sec. 26-20-4 ..... Began drlg. June 4; cmtd. 10-in. 182 ft.; drlg. 1,005 ft.

MOREHOUSE PARISH

Ruston Drlg. Co.'s No. 1 Tucker & Platt, 660 ft. N, 860 ft. W, SE cor. NE, Sec. 8-20-6 ..... Rig up.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 28-9-10 ..... Began drlg. May 3; cmtd. 12½-in. 150 ft.; S.D. for title work.

S. D. McDaniel's No. 2 Clark & Morse, 800 ft. E, 350 ft. N, C, Sec. 23-5-6 ..... Tested 1,000,000 ft. gas and S.W. 3 ft.; S.D. for orders; T.D. 2,526 ft.

Robeline O. & G. Co.'s No. 1 Winn, 558 ft. N, 348 ft. E, SW cor. SE, Sec. 7-8-9 ..... S.D. 1,600 ft.

RAPIDES PARISH

Ayers Bros.' No. 1 Wickliff, 2,790 ft. N, 150 ft. E, SW cor., Sec. 9-5n-2e ..... S. D. for fuel 2,650 ft.

RED RIVER PARISH

W. D. Ball's No. 1 Krumholtz, 660 ft. S, 660 ft. E, NW cor., Sec. 32-14-10 ..... Tested S.W. and show oil 6 ft. sand 1,700 ft.; W.O.

E. C. Lucas' No. 1 La. Pecan Co., Sec. 26-13-11 ..... S.D.; W.O. 782 ft.

Geo. L. Pace et al's No. 1 Clarkson, 200 ft. S, 200 ft. E, NW cor. NE, Sec. 30-12-9 ..... Rig up.

RICHLAND PARISH

Austin & McDonald's No. 1 Hunt, 594 ft. N, 660 ft. E, SW cor., Sec. 13-17-5 ..... Derrick.

Austin & McDonald's No. 2 Millsaps, SW cor., Sec. 17-17-6 ..... Waiting orders; T.D. 2,657 ft.

Austin & McDonald's No. 3 Millsaps, 1,980 ft. S, 660 ft. E, NW cor., Sec. 16-17-6 ..... Tested S.W.; W.O. 2,477 ft.

Austin & McDonald's No. 4 Millsaps, NW cor., Sec. 16-17-6 ..... Location.

Austin & McDonald's No. 5 Milsaps, 2,640 ft. N, 1,320 ft. W, SE cor., Sec. 8-17-6 ..... Derrick.

W. C. Feazel's No. 1 Landrum, 620 ft. N, 4,573 ft. E, SW cor., Sec. 6-16-7 ..... Derrick.

SABINE PARISH

Boone, trustee's No. 1 J. B. Hill, NE, Sec. 4-6-11 ..... (No check); derrick.

Longoria et al's No. 1 Belton, 330 ft. S, 330 ft. E, C, NE, Sec. 31-9-13 ..... Rig up.

Loring Oil Co.'s No. 1 Peavy-Wilson Lbr. Co., 200 ft. S, 330 ft. W, NE cor. SW NE, Sec. 21-6-13 ..... Top chalk 3,090 ft.; D.S. test 3,098 ft. dry; cg. 3,209.

Lohman et al's No. 1 Watt Lbr. Co., 150 ft. S, 330 ft. E, NW cor. NE SW, Sec. 18-4-11 ..... Rig up.

J. C. McDaniel & Lieber's No. 1 Batson, 675 ft. N, 318 ft. E, SW cor. SE, Sec. 16-18-12 ..... Cmtd. 6-in. (no 8¼-in. set) 2,193 ft.; bailed dry, 2,304 ft.

Paramount O. & G. Co.'s No. 1 Woolems, 330 ft. N, 330 ft. W, SE cor. NE NW, Sec. 11-6-12 ..... S.D. 1,656 ft.

Pelican O. & G. Co.'s No. 2 La. Long Leaf Lbr. Co., C, NE, Sec. 20-7-12 ..... Cmtd. 6⅝-inch. 2,677 ft.; top marl 2,693 ft.; T.D. 2,707 ft.

Pelican Nat. Gas Co.'s No. 2 Sabine Lbr. Co., 350 ft. S, 350 ft. E, C, Sec. 16-7-12 ..... Top marl 2,308 ft.; cg. 2,310 ft.

D. H. Riddick's No. 1 Scretchfield, 400 ft. E, 400 ft. N, SW cor. NW SE, Sec. 18-9-12 ..... Drlg. shale 3,100 ft.

San Miguel Oil Corp.'s No. 1 Blankenship, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 20-9-11 ..... Derrick.

H. T. Stacey et al's No. 1 Polly, NE cor. NE NE, Sec. 18-8-12 ..... Derrick.

Teteco Oil Corp.'s No. 1 La. Long Leaf Lbr. Co., 325 ft. S, 100 ft. W, NE cor. NW, Sec. 18-6-12 ..... Drlg. shale 2,839 ft.

TENSAS PARISH

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... Cmtd. 8-in. 1,830 ft.

ARKANSAS

ASHLEY COUNTY

J. D. Marcum Co.'s No. 1 McGarry, 300 ft. W, 100 ft. S, C, Sec. 10-19-4 ..... O.W.D.D.; arranging to deepen; T.D. 3,300 ft.

CALHOUN COUNTY

Tidal Oil Co.'s No. 1 Freeman-Smith Lbr. Co., 150 ft. C S line, NE NW, Sec. 3-16-14 ..... Rig up.

CLEBURNE COUNTY

Comden Oil Co. of Ark.'s No. 1 Donophan, 100 ft. S, 660 ft. E, NW cor. SW SE, Sec. 19-9-10 ..... Drlg. 3,507 ft.

Donnelly-Craver et al's No. 1 Doniphan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... Fishing for tools 960 ft.

COLUMBIA COUNTY

S. Y. Dorfman et al's No. 1 Merritt, 923 ft. S, 160 ft. W, NE cor. SE NW, Sec. 25-19-22 ..... Rig up.

Parker et al's No. 1 Franks, 330 ft. S, 330 ft. W, C, Sec. 25-19-22 ..... S.D. 2,835 ft.

J. K. Wadley's No. 1 Longino, 300 ft. E, 330 ft. S, NW cor., Sec. 32-18-22 ..... Began drlg. June 10; drlg. 100 ft.

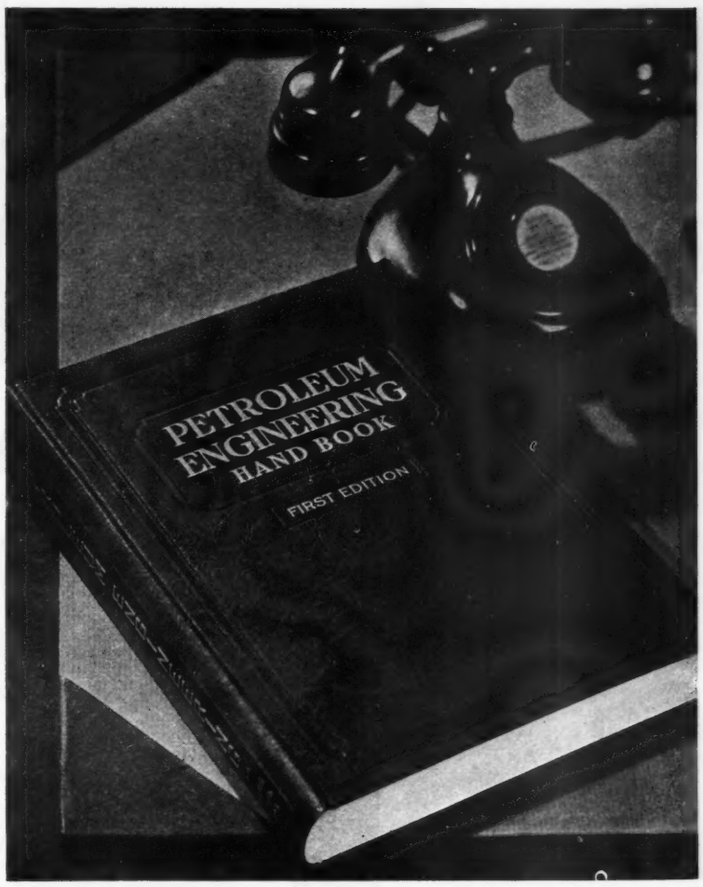
DREW COUNTY

McClintock & Goodka's No. 1 Ogles, 920 ft. W, 400 ft. S, NE cor., Sec. 35-13-5 ..... S.D.; W.O. 2,625 ft.

FRANKLIN COUNTY

Red Bank Oil Co.'s No. 1 Edtin, SW cor., Sec. 33-10-26.. Tested 1,000,000 ft. gas 1,317 ft. and 1,576 ft.; drlg. 1,700 ft.

(Continued on Next Page)



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GARLAND COUNTY

Givens et al's No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-3-19 ..... S.D.; W.O. 3,604 ft.

LITTLE RIVER COUNTY

A. L. Buck's No. 1 Greason, NW NW, Sec. 25-12-32 ..... S.D.; W. O. 2,391 ft.
McDonald & Shaw's No. 1 W. E. Black, 240 ft. N, 450 ft. W, SE cor. SE NE, Sec. 12-13-28 ..... Arranging to set 6⅝-in.; T.D. 2,180 ft.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D.; W.O. 3,610 ft.

MADISON COUNTY

J. W. Baxter's No. 1 Hallem, C NE SW, Sec. 17-16-26.... Began drlg. June 8; drlg. 85 ft.

MILLER COUNTY

Tenz et al's No. 1 G. W. Johnson, 400 ft. S, 400 ft. W, NE cor. SW, Sec. 24-15-26 ..... Location.

OUACHITA COUNTY

Anderson & Wimmer's No. 1 Buck, Sec. 7-15-17 ..... Sidetracking D.S.; T.D. 2,735 ft.

PIKE COUNTY

Theo. Davis, trustee's No. 1 Ruth Wilson, 200 ft. S, 200 ft. W, NE cor., Sec. 25-5-26 ..... Fishing 700 ft.; S.O.

POPE COUNTY

Conden Oil Co.'s No. 1 Mo. Pac. R.R., 660 ft. N, 660 ft. E, SW cor. NW SE, Sec. 13-9-19 ..... Drlg. 4,330 ft.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... Tested show of gas 1,508 ft.; fishing cable tools; T.D. 1,530 ft.

SEBASTIAN COUNTY

W. M. Kresson's No. 1 Spears, Sec. 9-7-29 ..... Drlg. 1,406 ft.
Lavaca O. & G. Co.'s No. 9 Cason, Sec. 21-8-30 ..... Drlg. 2,050 ft.
Mansfield Gas Co.'s No. 14 fee, Lot 10, Sec. 1-4-31 ..... Rig up.
Ozark Nat. Gas. Co.'s No. 10 Weaver, 660 ft. N, 660 ft. W, SE cor., SE NE, Sec. 27-8-30 ..... Location.

ST. FRANCIS COUNTY

Brownlee Drlg. Co.'s No. 1 Whitted, 110 ft. N, 110 ft. E, SW cor. SE NW, Sec. 28-4-1 ..... S.D.; W.O. 2,740 ft.

UNION COUNTY

Ark. Nat. Gas Corp.'s No. 1 Burns, 330 ft. E, 400 ft. N, SW cor. NE NW, Sec. 14-18-17 ..... S.W. 2,028-34 ft.; drlg. 2,646 ft.; cored S.W.; S.D. 3,230-36 ft.; csg. 3,270 ft.

Carter et al's No. 1 Burnside, 320 ft. W, 150 ft. S, NE cor. SE NE Sec. 13-18-14 ..... S.D. repairs; T.D. 2,020 ft.
S. B. Hickman's No. 1 Hogg, 330 ft. S, 150 ft. E, NW cor. SE SE, Sec. 35-16-17 ..... S.D.; W.O. 2,020 ft.
H. L. Hunt's No. 1 Trummell, 240 ft. S, 330 ft. E, NW cor. SW NW, Sec. 28-18-12 ..... D.S. test 3,414 ft.; 5,000,000 ft. gas and spray S.W.; cored S.W. sand 3,414-29 ft.; tested; est. 10,000,000 ft. gas with S.W. 3,556 ft.; csg. 3,634 ft.

Marine Oil Co.'s No. 2 Simmons, 300 ft. N, 300 ft. E, SW cor. SE NW, Sec. 10-18-13 ..... Rig up.
Marine Oil Co.'s No. 3-B Winn, 330 ft. S, 330 ft. W, NE cor., Sec. 10-18-12 ..... Cmtd. 8⅛-in. 3,554 ft.; 4 ft. sand; T.D. 3,556 ft.

Modisette Drlg. Co.'s No. 4 Union Sawmill, 300 ft. W, 300 ft. N, SE cor., Sec. 14-18-14 ..... Location.
Simms Oil Co.'s No. 1 G. G. Simmons, 200 ft. S, 200 ft. W, NE cor. SW, Sec. 10-18-13 ..... T.A. full S.W.; T.D. 3,535 ft.
Southern Crude O. P. Co.'s No. 1 Oliver, 330 ft. N, 330 ft. W, SE cor. NE, Sec. 11-18-13 ..... Fishing slip 3,534 ft.
South El Dorado Oil Co.'s No. 1 Traylor, 330 ft. N, 138 ft. W, SE cor. NW NE, Sec. 9-19-15 ..... Cmtd. 6-in. 2,163 ft.

VAN BUREN COUNTY

Glenn Kohle et al, trustee's No. 1 Scalan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13 ..... S.D. 50 ft.

WASHINGTON COUNTY

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32 ..... S.D.; W.O. 602 ft.
C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... Trying to kill wtr. flow 2,150 ft.; hard sand showing oil 1,637-40 ft.
Lincoln Leaseholding Synd.'s No. 1 Lincoln, Sec. 30-15-32. U.R. 8-in. to T.D. 1,500 ft.
H. H. Taylor et al's No. 1 Runny, C NE SW, Sec. 1-13-29. Drlg. 85 ft.

WHITE COUNTY

Letona Synd.'s No. 1 Letona, SE cor. NW SW, Sec. 35-9-8 ..... Pulled 5 3/16-in.; S.D.; W.O.; T.D. 3,650 ft.

YELL COUNTY

Tegmeir & Luckett's No. 1 Falcon, Sec. 36-1-21 ..... Recmtd. 6⅝-in. 3,577 ft.; C.D.

EAST TEXAS

BOWIE COUNTY

Lee Timberlake's No. 1 Tidwell, 2,800 ft. N, 300 ft. W, SE cor., Jos Eskell Sur. ..... Began drlg May 31; cmtd. 10-in. 81 ft.; csg. 602 ft.

CAMP COUNTY

Rogers et al's No. 1 Enfelt, R. M. Montgomery Sur. ..... T.A. 3,045 ft.

MARION COUNTY

P. E. Hussey's No. 1 A. A. Trammell, Chas. Lockhart Sur. ..... Derrick pattern.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. ..... S.D. 2,865 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. ..... S.D. 2,182 ft.

SHELBY COUNTY

Loring Oil Co.'s (formerly Benedum & Trees Oil Co.'s) No. 1 McCann, D. G. Green Sur. ..... Drlg. hard lime 4,440 ft.
Chapperall Oil Co.'s No. 2 Holt, Matthew Moore Sur. .... S.D. fuel; T.D. 3,300 ft.

MISSISSIPPI

ALCORN COUNTY

Alcorn Pet. Co.'s No. 1 Matthews, SE cor., Sec. 14-2s-7e... Fishing 6-in. and tools 2,392 ft.; T.D. 2,735 ft.

CHICKASAW COUNTY

Hightower & Golson's No. 1 Flemming, NE cor., Sec. 20-13-3 ..... Fishing 8¼-in. csg. 1,414 ft.

HINDS COUNTY

Oscar Brown's No. 1 Riverside (formerly Hennessee et al's), SE cor. SE SW, Sec. 23-16-5 ..... Set 12½-in. 30 ft.; S.D. 1,050 ft.
Cane River Oil Co.'s No. 1 Lufkin, Sec. 15-5-1e ..... Began drlg. May 28; S.D. waiting on 12½-in. csg.; T.D. 406 ft.
Dome Oil Co.'s No. 1 Elton, NE cor. SE SW, Sec. 5-4-1e.. Drlg. 1,387 ft.
Interior Oil Co.'s No. 1 Belhaven Heights, 1,165 ft. W, 614 ft. S, NE cor., Sec. 2-5-1e ..... Derrick.
Interior Oil Co.'s (was Progressive Oil Co.'s) No. 1 Mays, C NE NE, Sec. 2-5-1e ..... Derrick.
Jackson Oil Co.'s No. 1 Central Cotton Oil Co., NW cor. SW NW, Sec. 3-5-1e ..... Derrick.
Jackson O. & G. Co.'s No. 1 Taylor, SE cor. SE, Sec. 35-6-1e ..... S.D. igneous rock 3,232 ft.
Love Bros.' (was Love O. & G. Co.'s) No. 1 Bridges-Hilzim, 870 ft. N, 920 ft. W, SE cor., Sec. 35-6-1e.... S.D. 240 ft.
Love O. & G. Co.'s No. 1 Gordon, SW cor. SW NW, Sec. 8-5-1e ..... Derrick.
Love Pet. Co.'s No. 1 Hutton, 538 ft. S, 291 ft. E, NW cor. NE, Sec. 11-5-1e ..... Derrick.
T. G. & F. Co.'s No. 1 Toole, SW NE, Sec. 28-6-1e ..... Rig up.
Love Pet. Co.'s (was Love O. & G. Co.'s) No. 2 Mendoza, NE cor., Lot 2, Sec. 12-5-1e ..... Derrick.
Ohio Oil Co.'s No. 1 School, SE cor. N½ NE NE, Sec 16-5-1e ..... Derrick.
Mrs. Reeder et al's No. 1 State, SE cor. NW NW, Sec. 25-6-1e ..... W.O.; T.D. 2,905 ft.
Tri-State O. & G. Co.'s No. 1 Wilson, SW cor. SE NE, Sec. 23-6-1e ..... Derrick.
J. A. Weir et al's No. 1 Holliday & Ross, NW SE, Sec. 8-6-2e ..... Rig up.

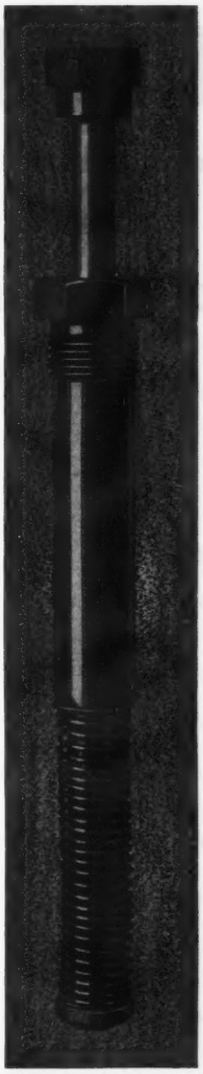
HUMPHREYS COUNTY

E. S. Steele et al's No. 1 C. B. Box, SE cor. SE NE, Sec. 25-14-4w ..... Set 12½-in. 60 ft.; S.D.

(Continued on Next Page)

McCORD

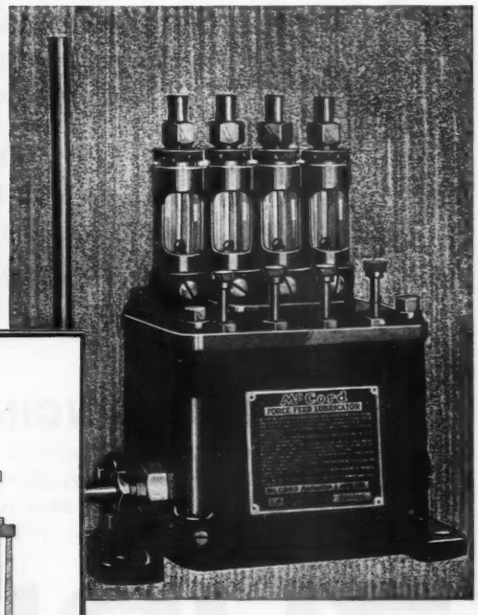
A BETTER LUBRICATOR

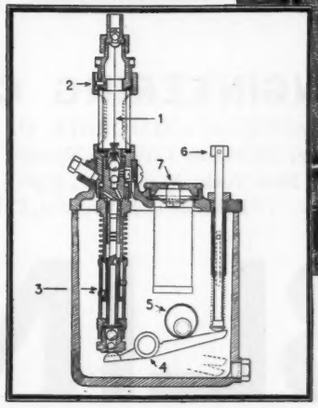


Quickly Filled and Effectively Cleaned—With Large Filler Opening and Strainer

The Filler Opening is provided with a deep, fine mesh strainer—having a capacity of 10 cubic inches, which is surrounded by 24 square inches of strainer screen. This large strainer area accounts for the quick filling, effective cleaning feature of the McCord "LF". A spring lid of novel design is another important part of the Filler Opening—it is securely attached to the lubricator which eliminates any possibility of loss, yet it can be swung absolutely clear of the opening for filling. The Filler Opening, together with Strainer Screen and Spring Lid, can be seen in the drawing below (No. 7). Note the great strainer area described above.

The Filler Opening, being on the end of the lubricator, is completely out of the way of feed lines and other possible obstructions. The spring lid prevents any leakage of oil through the Filler Opening and at the same time prevents any foreign matter entering.





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Recommended for sticky shale or tough shale and with thin hard shells between. Also for side-tracking

TYPE R-1

Recommended for sandy shale, thin shells and broken or streaked formations. Good for straightening crooked holes.

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FROM GRASS ROOTS TO BOTTOM!

LAUDERDALE COUNTY

Lauderdale O. & G. Co.'s No. 1 Lackey, 990 ft. S and E, NW cor. NE, Sec. 2-7-16 ..... Tested S.W. 3,252 ft.; S.D. 3,420 ft.
Meridian O. & G. Co.'s No. 1 Hauser, Sec. 33-8-18 ..... S.D.; W.O.; sandy shale 2,826 ft.
J. R. Smith Oil Co.'s No. 1 C. F. Craig, Sec. 2-16-14 ..... Derrick.

LAFAYETTE COUNTY

Banks-Goode et al's No. 1 May, 113½ rds. S, 26 rds. E, NW cor. SW, Sec. 22-10-1w ..... Derrick.

LINCOLN COUNTY

Lincoln O. & G. Co.'s No. 1 Pat Case, NE NE, Sec. 21-3-6 ..... S.D.; W.O. 2,231 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... S.D. 2,912 ft.; bailer lost in hole.
Amory Pet. Co.'s No. 1 Hall, Sec. 8-13-19 ..... Shot 2,402-18 ft.; small show oil; arranging to shoot 2,387-95 ft.
Park Bowser et al's No. 1 Cowart, second hole, Sec. 2-12-19 ..... S.D. 30 ft.

RANKIN COUNTY

Gulf Ref. Co.'s No. 1 Rainey, NW NW, Sec. 13-5-1e ..... Drlg. igneous rock 3,537 ft.
R. A. More et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e ..... Drlg. 900 ft.
Interior Oil Co.'s No. 1 Moore, 660 ft. N, 660 ft. W, SE cor. NW NW, Sec. 28-6-2e ..... S.D. 900 ft.
Pearl River O. & G. Co.'s No. 1 Littlefield, SE NE, Sec. 12-5-1e ..... S.D. waiting on 10-in. csg.; T.D. 824 ft.

WARREN COUNTY

El Dorado Oil Co.'s No. 1 Dornbush, Sec. 8-18-15 ..... S.D. 2,475 ft.; 2,350 ft D. S. in hole; W.O.

YALOBUSHA COUNTY

Carter Oil Co. and J. D. Collett's No. 1 Blackmur, 330 ft. S, 990 ft. W, Sec. 14-11-4 ..... Reaming; T.D. 2,438 ft.

YAZOO COUNTY

Amerada Pet. Corp.'s No. 1 Doherty, SW SW, Sec. 24-12-2 ..... Drlg. sandy lime 5,133 ft.

ALABAMA

LAMAR COUNTY

Griggs & Knapp's No. 1 Wefel, Sec. 25-12-14 ..... T.A. 1,740 ft.

LAUDERDALE COUNTY

A. D. Morton et al's No. 10 O'Neal est., Sec. 8-2s-13w ..... Cmtd. 12½-in. 125 ft.; drlg. hard lime 905 ft.

MARION COUNTY

Hobson et al's No. 1 John Clark, SE, Sec. 29-11-14 ..... Derrick pattern.

WASHINGTON COUNTY

S. A. Hobson's No. 1 Hobson Bros., Sec. 9-8-2 ..... S.D.; W.O.; flow at 1,450 ft.
S. A. Hobson's No. 1 Wilson, Sec. 27-7-1 ..... Fishing bailer; T.D. 881 ft.
Oscar Brown's No. 2 Land & Cotton Co., Sec. 25-3-2w ..... Drlg. 700 ft.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 54)

H. L. Hunt, Inc.'s No. 5 J. W. Peyton, 990 ft. W, 330 ft. S, NE cor. SE, Sec. 25-23-12 ..... Location.
H. L. Hunt, Inc.'s No. 7 J. W. Peyton, 990 ft. S, 990 ft. E, C, Sec. 25-23-12 ..... Location; reported drlg. in error.
H. L. Hunt, Inc.'s No. 8 J. W. Peyton, 990 ft. E, 330 ft. S, C, Sec. 25-23-12 ..... Location.
H. L. Hunt, Inc.'s No. 10 J. W. Peyton, 990 ft. S, 330 ft. E, C, Sec. 25-23-12 ..... 500 ft. fluid; W.O.S.R; 3,176 ft.
Magnolia Pet. Co.'s No. 2 Matlock, 330 ft. S and W, NE cor. SE SW, Sec. 25-23-12 ..... W.O.S.R. 3,188 ft.
Magnolia Pet. Co.'s No. 3 Matlock, 330 ft. N, 330 ft. W, SE cor. SE SW, Sec. 25-23-12 ..... Cmtd. 8¼-in. 3,132 ft; T.D. 3,179 ft.
Magnolia Pet. Co.'s No. 2 Roberson, 330 ft. S, 330 ft. E, NW cor. SW NE, Sec. 26-23-12 ..... Rig up.
Nat. Drlg. & Prod. Co.'s (was Lide et al's) No. 1 Matlock, 2,970 ft. S, 990 ft. E, NW cor., Sec. 26-23-12 ..... Sand 3,171-81 ft.; cmtd. 6⅝-in. 3,165 ft.
Nat. Gas Prod. Co.'s No. 3 U. S. Govt., 1,520 ft. S, 2,580 ft. E, NW cor., Sec. 31-23-11 ..... Cg. 3,134 ft.
Nat. Gas Prod. Co.'s No. 4 U. S. Govt., 2,440 ft. S, 2,580 ft. E, NW cor., Sec. 31-23-11 ..... Location.
The Texas Co.'s No. 1 Peyton, 660 ft. N, 330 ft. E, SW cor., Sec. 30-23-11 ..... Drlg. shale and bldrs. 3,120 ft.
The Texas Co.'s No. 5 Peyton, 330 ft. N, 330 ft. W, SE cor., Sec. 25-23-12 ..... Drlg. shale 2,840 ft.
The Texas Co.'s No. 7 Peyton, 1,090 ft. N, 150 ft. E.
The Texas Co.'s No. 1 Hy. Rose, 940 ft. E, 450 ft. N, C, Sec. 31-23-11 ..... O.W.D.D; waiting on rig; T.D. 2,680 ft.
The Texas Co.'s No. 4 Hy Rose, 1,000 ft. N, 330 ft. E, C, Sec. 31-23-11 ..... Rig up.
The Texas Co.'s No. 9 Wilkinson, 990 ft. N, 330 ft. E, C, Sec. 36-23-12 ..... Drlg. hard sand 3,068 ft.
The Texas Co.'s No. 10 Wilkinson, 250 ft. N, 330 ft. W, SE cor. NE, Sec. 36-23-12 ..... Derrick.
The Texas Co.'s No. 11 Wilkinson, 990 ft. W, 330 ft. N, SE cor. NE, Sec. 36-23-12 ..... Rig up.
Tippett Drlg. Co.'s No. 3 Holmes, 330 ft. N, 330 ft. E, SW cor. NE NW, Sec. 36-23-12 ..... Drlg. hard lime, 2,733 ft.
Woodley et al's No. 1 Roberson, 330 ft. N, 330 ft. W, SE cor. SW NE, Sec. 22-23-12 ..... Surface csg. collapsed; W.O; T.D. 1,500 ft.

BOSSIER PARISH—SLIGO

La. G. & F. Co.'s No. 6 Thigpen-Herold, 660 ft. S, 1,980 ft. E, NW cor., Sec. 13-17-12 ..... Cmtd. 6⅝-in. 2,458 ft.
La. Gas & Fuel Co.'s No. 7 Thigpen & Herold, 660 ft. N, 660 ft. E, SW cor., Sec. 19-17-11 ..... Location.

CADDO PARISH—DIXIE

D. C. Richardson's No. 1 Oden, 330 ft. S, 330 ft. W, C, Sec. 18-19-14 ..... S.D; high wtr; T.D. 2,620 ft.

CADDO PARISH—GREENWOOD

Ark.-La. P. L. Co.'s No. 1-B Brumble, 330 ft. S, 1,280 ft. E, NW cor., Sec. 18-16-16 ..... Cmtd. to 2,650 ft.; T.D. 3,580 ft.
Calatex O. & G. Co.'s No. 1 Edgar, 1,460 ft. S, 1,900 ft. E, NW cor., Sec. 17-16-16 ..... Location.
Calatex O. & G. Co.'s No. 1 McAnn-Alfred, 1,810 ft. S, 970 ft. E, NW cor., Sec. 17-16-16 ..... Location.
Calatex O. & G. Co.'s No. 1 Hudson, 2,395 ft. N, 660 ft. E, SW cor., Sec. 8-16-16 ..... Location.
Calatex O. & G. Co.'s No. 2 Taylor-Trosper, 45 ft. N, 1,320 ft. E, SW cor., Sec. 8-16-16 ..... Location.

CADDO PARISH—MOORINGSPORT

Falcon Oil Co.'s No. 1 Miller, 1,020 ft. N, 1,320 ft. E, SW cor., Sec. 29-20-15 ..... Location.
Falcon Oil Co.'s No. 4 Muslow, 200 ft. W, 1,270 ft. S, NE cor., Sec. 29-20-15 ..... Began drlg. June 10; drlg.
L. A. Wanen's No. 1 Barr Heirs, 1,851 ft. E, 67 ft. S, NW cor., Sec. 32-20-15 ..... Rig up.

CADDO PARISH—OIL CITY

Gulf Ref. Co.'s No. 27-A Levee Board, 2,005 ft. S, 200 ft. W, NE cor. NW, Sec. 34-21-16 ..... 700 ft. oil; W.O.S.R; T.D. 1,833 ft.
Gulf Ref. Co.'s No. 28-A Levee Board, 210 ft. S, 200 ft. E, NW cor., Sec. 34-21-16 ..... Location.
P. T. Mize's No. 1-A La. Oil Ref. Corp., 662 ft. N, 175 ft. E, SW cor., Sec. 6-20-15 ..... Flowed 15 bbls. through 6-in. after shot at 1,475 ft; W.O.S.R; T. D. 1,485 ft.
P. T. Mize's No. 2 La. Oil Ref. Co., 200 ft. N, 200 ft. E, SW cor., Sec. 6-20-15 ..... Derrick.
The Texas Co.'s No. 73 Levee Board, 1,642 feet. E, 780 ft. N, SW cor. SW SE, Sec. 27-21-16 ..... Location.

CADDO—PINE ISLAND

Tholl Oil Co.'s No. 12 Bashara, 300 ft. S, 100 ft. W, NE cor. NW, Sec. 23-21-15 ..... W.O.S.R. 1,660 ft.

DE SOTO PARISH—HOLLY

Ark. Fuel Oil Co.'s No. 2 Scott, 330 ft. N, 330 ft. E, SW cor. SE NE, Sec. 32-14-13 ..... Swabbed 35 bbls. oil, 20 bbls. S.W. 2,781 ft.; W.O. 2,790 ft.
W. C. Clark et al's No. 1 Nabors, NW cor. SE NW, Sec. 17-13-13 ..... Rig up.
Lacy Oil Co.'s No. 1 G. W. Sample, 300 ft. S, 300 ft. W, NE cor. NW NE, Sec. 1-13-14 ..... Began drlg. June 7; cmtd. 10-in. 180 ft.
Frank Melat, Inc.'s No. 1 Schryver, 175 ft. E, 175 ft. N, SW cor. NW SW, Sec. 35-14-13 ..... Base chalk 1,932 ft; S.D. 1,940 ft.
Standard Oil Co.'s No. 1-B Farmer (was R. O. Roy's) 660 ft. S, 660 ft. E, NE SW, Sec. 12-13-13 ..... Drlg. 2,719 ft.
Standard Oil Co.'s No. 1-C Farmer, 330 ft. N, 330 ft. E, SW cor. SE, Sec. 32-14-13 ..... Drlg. 2,907 ft.
Standard Oil Co.'s No. 1-D Farmer (was R. O. Roy's), 330 ft. N, 330 ft. E, SW cor. SE, Sec. 32-14-13 ..... Derrick.
Standard Oil Co.'s No. 2 Lee, 330 ft. N, 330 ft. E, SW cor. NW SW, Sec. 33-14-13 ..... Began drlg June 7; cmtd. 10-in. 208 ft.; drlg. 330 ft.
Standard Oil Co.'s No. 1 McClanahan, 380 ft. S, 330 ft. W, NE cor. SE, Sec. 8-13-13 ..... Coring shale 2,877 ft.
Standard Oil Co.'s No. 1 McGee (was R. O. Roy's), 660 ft. N, 660 ft. W, C, Sec. 8-13-13 ..... Drlg. sand 2,793 ft.
Standard Oil Co.'s No. 1 H. B. Sample (was R. O. Roy's), 660 ft. W, 660 ft. S, NE cor., Sec. 7-13-13 ..... Drlg. lime and shale 3,105 ft.

LA SALLE PARISH—URANIA

Kinney, Hardtner & Randall's No. 1 Kinney, SW SW, Sec. 7-10-2e ..... S.D. 1,570 ft.
La. Oil Ref. Corp.'s No. 2 La. Central O. & G. Co., 660 ft. N, 200 ft. E, SW cor., Sec. 27-10-2e ..... D.S. test sandy shale 1,455-8 ft. dry; cg. sand and shale 1,495 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 330 ft. S, NE cor., Sec. 2-20-4 ..... Location.
J. S. Herkness' No. 12 Bowles, 3,392 ft. E, 3,300 ft. S, NW cor., Sec. 18-20-5 ..... S.D. high water; T.D. 2,780 ft.
Industrial Gas Co.'s No. 1 fee, 1,980 ft. S, 660 ft. W, NE cor., Sec. 3-20-4 ..... Began drlg. May 16; cmtd. 12⅛-in. 143 ft., 9-in. 848 ft.
La. G. & F. Co.'s No. 26 Crossett, 645 ft. E, 574 ft. S, NW cor. Lot 9, Sec. 33-21-5 ..... Began drlg. May 16; S.D. high water; T.D. 75 ft.
Southern Carbon Co.'s No. 55 fee, 1,980 ft. S, 660 ft. W, NE cor., Sec. 16-20-4 ..... Cmtd. 6-in. 2,090 ft.
Southern Carbon Co.'s No. 56 fee, 660 ft. S, 660 ft. E, NW cor. NW, Sec. 15-20-4 ..... Location.
United Carbon Co.'s No. 2 Patton, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 2-20-4 ..... S.D; high wtr.

OUACHITA PARISH

Amalgamated Co.'s No. 1-B Kate Cole, 660 ft. N, 660 ft. E, SW cor. NE SW, Sec. 25-20-4 ..... Rig up.
Ark.-La. P. L. Co.'s No. 4 McEnery, 1,320 ft. N, 760 ft. E, SW cor., Sec. 25-19-4 ..... Rig up.
Carbon Consolidated, Inc.'s No. 5 Guthrie (was United Oil & Nat. Gas Co.'s No. 5 Guthrie), 6,634 ft. N, 7,078 ft. W, cor. Secs. 49, 25 and 26, in Sec. 50-20-4 ..... Derrick.
Hope Prod. Co.'s No. 2 Fairbanks, 1,876 ft. E, 623 ft. N, SW cor. SE, Sec. 25-20-4 ..... Cmtd. 6-in. 2,246 ft.
Hope Prod. Co.'s No. 4 Fairbanks, 616 ft. W, 623 ft. S, NE cor., Sec. 36-20-4 ..... Derrick.
Jordan Drlg. Co.'s No. 7 Cole, 265 ft. S, 1,459 ft. W, NE cor., Sec. 49, in Sec. 50-18-4 ..... Location.
Jordan Drlg. Co.'s No. 1 J. P. Parker, 950 ft. N, 485 ft. W, cor. Secs. 41, 9 and 16, in Sec. 41-18-4 ..... Location.
Jordan Drlg. Co.'s No. 2 Pereboom, 1,207 ft. W, 264 ft. S, C, Sec. 9-18-4 ..... Location.
La. G. & F. Co.'s No. 3 Breard, S 9° 734 ft., S 81° E 594 ft., NW cor., Sec. 44-18-4 ..... S.D. high wtr.; T.D. 1,300 ft.
Ouachita Nat. Gas Co.'s No. 13 Smith, 5,684 ft. E, 8,148 ft. N, NW cor., Sec. 38 in Sec. 37-20-4 ..... Cmtd. 9-in. 872 ft.
Pipes & Mack's No. 1 Union Gas Products Co., Inc., 1,598 ft. W, 297 ft. N, SE cor. SW, Sec. 7-18-5 ..... Tested 250,000 ft. gas 2,302 ft; D.S. test 2,384 ft.; 26 fourbles S.W.; arranging to deepen.
Pipes & Mack's No. 2 Union Gas Products Co., 296 ft. W, 528 ft. N, SE cor. SW, Sec. 7-18-5 ..... Location.
Jordan Drlg. Co.'s No. 1 School, 216 ft. S, 244 ft. W, NE cor. NW, Sec. 16-18-4 ..... Location.
Union Gas Products Co.'s No. 1 Hare, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 22-19-5 ..... D.S. test 2,565 ft.; dry; W.O.
United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4 ..... Location.
United O. & N. G. Co.'s No. 2 Cole, 660 ft. S, 594 ft. E, C, Sec. 26-20-4 ..... Derrick.

RICHLAND PARISH

W. C. Feazel's No. 1 R. B. Simon, 2,406 ft. W, 2,020 ft. S, NE cor., Sec. 11-16-6 ..... Rig up.
Franklin O. & G. Co.'s No. 1 Thompson, 660 ft. N, 165 ft. W, SE cor. NE, Sec. 14-16-6 ..... Location.
Industrial Gas Co.'s No. 1 Ellege, 1,320 ft. N, 660 ft. E, SW cor. SE, Sec. 4-16-6 ..... Cmtd. 6-in. 2,300 ft.
Industrial Gas Co.'s No. 1 Lyles, 1,314 ft. N, 520 ft. E, SW cor., Sec. 23-16-6 ..... Rig up.
International Gas Prod. Co.'s No. 1 Minnie LaGrone, 769 ft. N, 858 ft. E, SW cor., Sec. 7-16-7 ..... Location.
La. G. & F. Co.'s No. 1-C McCoy, 872 ft. W, 1,749 ft. N, SE cor. Sec. 8-16-6 ..... Location.
La. Gas & Fuel Co.'s No. 1-D D. R. Sartor, 660 ft. W, 1,320 ft. N, SE cor. SW SW, Sec. 9-16-6 ..... Began drlg. June 6; cmtd. 12½-in. 172 ft; 9-in. 840 ft.
Northern La. Nat. Gas Co.'s No. 4-B McCoy, 1,445 ft. N, 734 ft. W, SE cor. SW SE, Sec. 17-16-6 ..... Began drlg. June 4; cmtd. 12½-in. 180 ft.; 9-in. 875 ft.
Palmer Corp.'s No. 1-B Boykin, 177 ft. S, 787 ft. E, C, Sec. 33-17-6 ..... Derrick.
Palmer Corp.'s No. 1 Newberry, 3,296 ft. N, 2,640 ft W, SE cor., Sec. 2-16-6 ..... Derrick.
Palmer Corp.'s No. 6 Rhymes, 1,290 ft. S, 1,080 ft. E, NW cor., Sec. 3-16-6 ..... Cmtd. 6-in. 2,300 ft.
Palmer Corp.'s No. 1 N. D. Thomason, 1,320 ft. S, 660 ft. E, NW cor. NW, Sec. 22-16-6 ..... Derrick.
Pelican Nat. Gas Co.'s No. 1 M. Chapman, 660 ft. N, 660 ft. E, SW cor., Sec. 14-16-6 ..... Drlg. shale and bldrs. 1,830 ft.
Richland Operating Co.'s No. 2 Godfrey, 1,980 ft. N, 1,122 ft. E, SW cor., Sec. 25-16-6 ..... Cmtd. 6-in. 2,285 ft.
Richland Prod. Co.'s No. 1 Ball, 2,050 ft. S, 1,980 ft. W, NE cor., Sec. 22-16-6 ..... Rig up.
Richland Prod. Co.'s No. 1 T. S. McCoy, 1,252 ft. E, 589 ft. N, SW cor., Sec. 3-16-6 ..... Drlg. 1,300 ft.
Southern Carbon Co.'s No. 1 Hallock, 3,300 ft. N, 760 ft. W, SE cor., Sec. 2-16-6 ..... Began drlg. June 6; cmtd. 12-in. 185 ft.; drlg. 852 ft.
Southern Carbon Co.'s No. 1 H. H. Hemler, 660 ft. N, 1,435 ft. E, SW cor., Sec. 1-16-6 ..... Location.
Southern Carbon Co.'s No. 1-B J. H. Hemler, 619 ft. N, 5,024 ft. E, SW cor., Sec. 1-16-6 ..... Rig up.
Southern Carbon Co.'s No. 1-B M. L. McCoy, 660 ft. S, 660 ft. E, NW cor. NE, Sec. 32-16-6 ..... Cmtd. 6-in. 2,300 ft.
Southern Carbon Co.'s No. 1-C M. L. McCoy, 1,880 ft. N, 2,871 ft. E, SW cor., Sec. 1-16-6 ..... Cmtd. 8-in. 860 ft.; drlg. 1,420 ft.
Southern Carbon Co.'s No. 2-C M. L. McCoy, 1,880 ft. N, 5,024 ft. E, SW cor., Sec. 1-16-6 ..... Location.
Southern Carbon Co.'s No. 1-C T. R. Sartor, 660 ft. S, 660 ft. W, NE cor., Sec. 29-16-6 ..... Derrick.
Southern Carbon Co.'s No. 1 H. L. Thomason, 660 ft. N, 660 ft E, SW cor., Sec. 2-16-6 ..... Location.

Southern Carbon Co.'s No. 1-B Thomason et al, 2,310 ft. W, 100 ft. S, NE cor., Sec. 23-16-6.....Location.
Southern Carbon Co.'s No. 1-C Thomason, 1,920 ft. N, 660 ft. W, SE cor., Sec. 14-16-6.....Location.
United Carbon Co.'s No. 1 Duff, 1,320 ft. N, 660 ft. W, SE cor., Sec. 15-16-6.....Stg. 4½-in. lines; T.D. 2,448 ft.
United Carbon Co.'s No. 1 E. W. Dunaway, 1,270 ft. S, 660 ft. W, NE cor., Sec. 26-16-6.....Location.
United Carbon Co.'s No. 1 Landers, 1,320 ft. S, 660 ft. E, NW cor., Sec. 3-15-6.....Cmtd. 6-in. 2,300 ft.
United Carbon Co.'s No. 3 Mitchell, 660 ft. S, 660 ft. W, NE cor., Sec. 20-17-6.....Drlg. shale and bldrs. 1,915 ft.

SABINE PARISH—PLEASANT HILL

Bridges-Clark Oil Co.'s No. 2 J. W. Guy, 330 ft. S, 330 ft. W, NE cor. SE SE, Sec. 33-10-12.....Set 6⅝-in. and packer 2,420 ft.; tested dry; show gas 2,427-32 ft. and 2,447 ft.; T.A. 2,447 ft.
F. A. Bartlett, Jr.'s No. 1 Logan, 300 ft. S, 300 ft. E, NW cor., Sec. 27-10-12.....Rig up.
Standard Oil Co.'s No. 2 Ivey, 330 ft. N, 330 ft. E, SW cor. SE SW, Sec. 34-10-12.....Fishing core barrel; T.D. 3,225 ft.

SABINE PARISH—ZWOLLE

Central Pet. Co.'s (was Allen & Thompson's) No. 1 McCormick, Lot 1, Blk. 2, NW NW, Sec. 31-8-12.....Dry 2,595 ft.; W.O.
Central Pet. Co.'s No. 1 Baptist Church (was No. 1 Wall), Zwolle townsite in Sec. 31-8-12.....Bailed dry 2,580 ft.; W.O.
Tom Davis' (was T. D. Allison's) No. 1 Holliday, Sec. 31-8-12 Zwolle Townsite.....Drlg. 1,200 ft.
Loring Oil Co.'s (formerly Benedum & Trees Oil Co.'s) No. 4 Bowman-Hicks, 330 ft. N, 330 ft. W, C, Sec. 34-8-12.....S.D. 2,585 ft.
Loring Oil Co.'s (formerly Benedum & Trees Oil Co.'s) No. 5 Bowman-Hicks, 900 ft. S, 1,400 ft. W, C, Sec. 34-8-12.....Drlg. shale 3,856 ft.
Loring Oil Co.'s No. 8 Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor. SW SE, Sec. 33-8-12.....Began drlg. June 5; cmtd. 10-in. 108 ft.; drlg. 1,500 ft.
Loring Oil Co.'s No. 9 Bowman-Hicks, 330 ft. N, 330 ft. W, SE cor. NE SE, Sec. 34-8-12.....1,000 ft. oil; drlg. cable tools 2,515 ft.
Loring Oil Co.'s No. 10 Bowman-Hicks, 330 ft. N, 330 ft. E, SW cor. NE SE, Sec. 33-8-12.....Rig up.
Loring Oil Co.'s No. 1 Gardner, 330 ft. N, 330 ft. W, SE cor. NE, Sec. 27-8-12.....Derrick.
Loring Oil Co.'s No. 1 Schuil, 330 ft. S, 330 ft. E, NW cor. SW, Sec. 26-8-12.....Derrick.
McFann & Pace's No. 1 Reeves, 581 ft. E, 588 ft. N, SW cor. NW, Sec. 31-8-12.....Bailed dry 2,581-2,625 ft.; W.O.
J. R. Crawford's No. 1 Pearce, 408 ft. S, 200 ft. E, NW cor. SW SE, Sec. 32-8-12.....S.D. 1,950 ft.
R. T. Dudney et al's No. 1 Pearson, SE cor. Lot 3, Blk. 3, SW NW, Sec. 31-8-12, Zwolle townsite.....200 ft. oil; W.O.; T.D. 2,576 ft.
Gerke et al's No. 1 Okerson, Zwolle townsite, Sec. 31-8-12.....Derrick.
Glassell & Merren's No. 1 Thomas, Lot 13, Blk. 3, Zwolle townsite, Sec. 31-8-12.....Oil show; S.D.; W.O. 2,600 ft.
H. E. Granville's No. 1 Parrott, 1,052 ft. S, 661 ft. E. NW cor., Sec. 31-8-12.....Drlg. 2,300 ft.
Jones et al's No. 1 Carson, 225 ft. S, 108 ft. W, NE cor. SW NW, Sec. 31-8-12.....Cmtd. 6⅝-in. 2,180 ft.; drlg. 2,200 ft.
F. M. Hood's No. 1-B (was No. 2) Winston, 700 ft. E, 425 ft. S, NW cor., Sec. 31-8-12, Zwolle townsite....S.D. 1,065 ft.
L. Nagle's No. 1 Corley, 338 ft. N, 412 ft. W, SE cor. SW NW, Sec. 31-8-12.....Reported dry and abnd. in error; W.O.S.R. 2,461 ft.
Ohio Oil Co.'s No. 3 Bowman-Hicks, 330 ft. S and W, NE cor. SE SW, Sec. 33-8-12.....Arranging to shoot formation 2,550 ft.; T.D. 2,980 ft; no S.W. show.
Ohio Oil Co.'s No. 5 Bowman-Hicks, 330 ft. N, 330 ft. E, SW cor., Sec. 33-8-12.....Location.
Olson Bros.' No. 2 Boone-Ferguson, 330 ft. N, 330, ft. W, SE cor. NW SE, Sec. 33-8-12.....Derrick.
Olsen Bros.' No. 1 Keeler, SW cor. SW SE, Sec. 27-8-12.....T.A. 2,625 ft.
W. D. Perritt's No. 1 Crow, 150 ft. N, 150 ft. E, SW cor. SE SW SW, Sec. 30-8-12.....500 ft. oil; W.O.S.R. 2,387 ft.
W. D. Perritt et al's No. 1 Elliott, Sec. 30-8-12.....(No check); location.
Philp Bros.' No. 1 Dow, Lot 1, Blk. 18, Zwolle townsite, Sec. 31-8-12.....Dry 2,157 and 2,240 ft.; W.O.
Posey et al's No. 1 Peterson, Blk. 16, Zwolle townsite, Sec. 31-8-12.....S.D. 250 ft.
Ruston Drlg. Co.'s No. 1 Bowman-Hicks, 330 ft. S, 330 ft. W, NE cor., Sec. 4-7-12.....T.A. 2,640 ft.
Ruston Drlg. Co.'s No. 1-A Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor. SW SW, Sec. 35-8-12.....T.A. 2,690 ft.
Stovall Drlg. Co.'s No. 1 Lefkovitz, 247 ft. N, 250 ft. W, SE cor. N½ SE NW, Sec. 32-8-12.....S.W. 2,858 ft.; W.O. 3,008 ft.
Wheatcroft et al's No. 1 Sabine Lbr. Co., SW NE, Sec. 31-8-12.....Cmtd. 6⅝-in. 2,161 ft; top chalk 2,165 ft.
Wilder et al's No. 1 Parrott, Sec. 31-8-12.....Began drlg. June 6; cmtd. 10-in. 84 ft.

SABINE PARISH—BLUE LAKE

R. L. Gay's No. 8 Bowman-Hicks, Sec. 18-7-13.....Bailing to test; T.D. 2,328 ft.
Ruston Drlg. Co.'s No. 1-B Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor., Sec. 24-7-14.....Tested dry 2,470 ft; T.A.

UNION PARISH

Greenwood Prod. Co.'s No. 1-C Guinn, 1,320 ft. N, 300 ft. W, SE cor. NE, Sec. 32-21-3.....Cmtd. 6-in. 2,021 ft.
Nemours Corp.'s No. 1 Digby, 201 ft. S, 919 ft. W, NE cor. NW, Sec. 11-20-3.....Began drlg. June 5; cmtd. 12-in. 186 ft.; drlg. 850 ft.
Stevenson, trustee's No. 1 Stephenson, 150 ft. N, 120 ft. E, SW cor. NE NW, Sec. 11-20-3.....Rig up.
Stovall Drlg. Co.'s No. 1 Murray, 1,650 ft. N, 330 ft. W, SE cor. SW, Sec. 32-23-4.....Rig up.

WEBSTER PARISH—SAREPTA AND SHONGALOO

Ideal O. & G. Co.'s No. 1 Coyle, 300 ft. N, 300 ft. E, SW cor. SW SE, Sec. 24-23-11.....Derrick.
H. M. Jones Drlg. Co.'s (was E. W. Bateman's) No. 1 Cook, 200 ft. S, 200 ft. W, NE cor. S½ SW NE, Sec. 2-22-11.....Tested S.W. show of oil 2,733 ft.; W.O.
H. M. Jones Drlg. Co.'s (was E. W. Bateman's) No. 2 Cook, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 2-22-11.....Location.
H. M. Jones Drlg. Co.'s No. 1 Womble, 660 ft. S, 200 ft. E, NW cor. SW, Sec. 1-22-11.....Location.
Glenn Kable's No. 1 E. B. Taylor, 182 ft. N, 137 ft. W, SE cor. SE NE, Sec. 35-23-11.....Derrick.
K. C. Supply Co.'s No. 2 Slack, 1,006 ft. N, 192 ft. W, SE cor. SE SW, Sec. 36-23-11.....Began drlg. June 10; drlg.
K. C. Supply Co.'s No. 1 Cochrane, 330 ft. N, 330 ft. W, SE cor. E½ NW, Sec. 36-23-11.....Coring 2,700 ft.
Magnolia Pet. Co.'s No. 1 Gardner, 175 ft. N, 330 ft. E, SW cor. SE NW, Sec. 1-23-11.....Cmtd. 8⅛-in. 2,712 ft.; T.D. 2,727 ft.
J. S. Martin, trustee's No. 1 Taylor, 330 ft. N, 330 ft. W, SE cor. NW NW, Sec. 36-23-11.....Cg. 3,100 ft.
Merrick Oil Corp.'s No. 3 Slack, 330 ft. N, 330 ft. W, SE cor. SW SE, Sec. 36-23-11.....Derrick.
Mt. Vernon Oil Co.'s No. 3 Pardee, 200 ft. S, 1,500 ft. E, NW cor. NE SW, Sec. 2-22-11.....1,400 ft. fluid; 6 ft. sand; W.O.S.R.; T.D. 2,653 ft.
S. H. Riggs, trustee's No. 2 L. & A., 255 ft. S, 600 ft. W, NE cor. SW NE, Sec. 36-23-11.....Derrick.
S. H. Riggs, trustee's No. 3 L. & A., 255 ft. N, 600 ft. W, SE cor. NW SE, Sec. 36-23-11.....Location.
S. H. Riggs, trustee's No. 4 L. & A., 255 ft. S, 600 ft. W, NE cor. SW SE, Sec. 36-23-11.....Location.
S. H. Riggs, trustee's No. 1 L. & A., 250 ft. S, 530 ft. E, NW cor. NW NE, Sec. 1-22-11.....Began drlg June 7; cmtd. 10-in. 300 ft.; drlg. 700 ft.
W. O. Neely's No. 1 J. R. Slack, 150 ft. N, 150 ft. E, SW cor., Sec. 12-22-11.....Location.
Sarepta Oil Co.'s No. 2 Gardner, NE SW, Sec. 1-22-11..Rig up.
Sarepta Oil Co.'s No. 1 Slack, SW cor. NW NE, Sec. 36-23-11.....Rig up.
Wingfield et al's No. 1 Slack, Sec. 1-22-11.....(No check); location.

ARKANSAS

JOHNSON COUNTY

Ark.-La. P. L. Co.'s No. 1 Cline, 660 ft. S, 660 ft. W, NE cor. NE SE, Sec. 16-10-24.....Drlg. 1,490 ft.
Blackwell O. & G. Co.'s No. 1 Western Coal & Mining Co., C NE SE, Sec. 20-9-25.....Drlg. 1,010 ft.

NEVADA COUNTY

Roy Davis et al's No. 1 Chas. Henry, 1,120 ft. N, 1,120 ft. W, SE cor., Sec. 10-12-20.....Rig up.
C. F. Steele's No. 1 E. W. Groves, Sec. 21-14-20.....S.D. 2,810 ft.

OUACHITA COUNTY—SMACKOVER

L. K. Hamilton's No. 2 Arnold & Doyle, 460 ft. E, NW cor. SE SE, Sec. 23-15-16.....700 ft. oil; 74 ft. broken sand 1,075 ft; W.O.
J. D. Reynolds' No. 4 Berg, 300 ft. S, 180 ft. W, NE cor. SE SW, Sec. 27-15-15.....W.O.S.R; 400 ft. fluid; T.D. 1,058 ft.

OUACHITA COUNTY—STEPHENS

Buffalo Oil Co.'s No. 1 Trammell, NE cor. SW NE, Sec. 11-15-19.....Rig up.

UNION COUNTY—CHAMPAGNOLLE

Lion Oil Ref. Co.'s No. 2 Kelly, Sec. 9-17-14.....O.W.D.D.; comp. Apr. 4, 1929; 6,800,000 ft. gas 2,822 ft; perforated csg. 2,735-60 ft; tested S.W.; drlg. 2,850 ft.
Sundby et al's No. 2 Perdue, 75 ft. S, 150 ft. E, NW cor., Sec. 33-16-14.....S.D. 2,850 ft.

UNION COUNTY—EL DORADO

H. L. Hunt's No. 6 Pratt, 150 ft. N, 330 ft. E, SW cor. NE NE, Sec. 7-18-15.....S.W. 2,214 ft.
Malloy & Co.'s No. 1 Murphy, Sec. 1-18-16.....Rig up; W.O.
Malloy & Co.'s No. 3 Robertson, NE cor. S½ SW NE, Sec. 6-18-15.....Location.
Woodley Pet. Co.'s No. 5 Alderson, 175 ft. S, 175 ft. E, NW cor. NW SW, Sec. 31-17-15.....Pumping, no gauge; T.D. 2,200 ft.

EAST TEXAS

HARRISON COUNTY

Calatex O. & G. Co.'s No. 6 Agurs, 755 ft. N, 699 ft. W, Mile Post 27, in J. Womack Sur.....Location.
Shell Rock Pet. Co.'s No. 1 Oliver Dougherty, W. D. Burris Sur.....Drlg. 3,417 ft.

PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 2-A G. W. Brumble, 477 ft. W, 473 ft. S, NW cor. Jno. Womack Sur. in B. C. Jordan Sur.....Began drlg. June 10; drlg.
Calatex O. & G. Co.'s No. 3 Caldwell, 243 ft. S, 1,034 ft. W, SE cor. Jno. Womack Sur. in Jas. Shadoin Sur.....Cmtd. 6-in. 2,762 ft; drlg. 2,924 ft.
Nat. Gas Products Co.'s No. 3 Tom Moore, 339 ft. E, 7,928 ft. S, NW cor. B. C. Jordan Sur.....Began drlg. June 6; cmtd. 15½-in. 100 ft.; drlg 175 ft.
The Texas Co.'s No. 9 G. W. Brumble, 2,570 ft. E, 180 ft. S, SW cor. E. F. Mitcheson Sur. in Jno. Womack Sur.....Rig up.
Doris Thomason's No. 15 Crenshaw, 1,992 ft. S, 2,305 ft. E, SW cor. Jno. Womack Sur. in B. C. Jordan. Sur.....Derrick.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 55)

Humble & Valley's No. 7 Urban.....Shut down 1,165 ft.
Humble & Valley's No. 8-A Walton.....Comp. flowing 551 bbls. 3,483 ft.
Humble & Valley's No. 6 Woodley.....Derrick.
Humble & Valley's No. 7 Woodley.....Derrick.
Humble & Valley's No. 8 Woodley.....Derrick.
Humble & Valley's No. 9 Woodley.....Location.

DEWALT—FORT BEND COUNTY

Humble Oil & Ref. Co.'s No. 10 Sugarland.....Drlg. sard sand 2,778 ft.
Humble Oil & Ref. Co.'s No. 10 Nelson.....Comp. flowing 20 bbls. 3,592 ft.
Humble Oil & Refining Co.'s No. 15 Brazos.....Location.

HUMBLE—HARRIS COUNTY

Benedum & Trees' No. 1 Foley, south.....Drlg. sticky shale 7,283 ft.
Dunbar & Deering's No. 1 Bennett, northwest.....Rig.
Houtex Oil Co.'s No. 1 Hirsch, northwest.....Drlg.
Rio Bravo Oil Co.'s No. 1 fee, west.....Total depth 4,293 ft.; milling out 3,590 ft.
Rio Bravo Oil Co.'s No. 2 fee, west.....Drlg. gumbo and shale 1,931 ft.
Sun Oil Co.'s No. 6 Bender, west.....Oil sand 3,978-96 ft.; cem. 7-in. casing 3,965 ft.
Sun Oil Co.'s No. 7 Bender, west.....No report.
Sun Oil Co.'s No. 8 Bender, west.....No report.
Sun Oil Co.'s No. 48 River, north.....Drlg. shale and lime 3,616 ft.
Talbot & Markle's No. 1 Bender.....Location.
The Texas Company's No. 24 House (workover).....Abandoned 3,968 ft.
The Texas Company's No. 22 Wheeler & Pickins, northeast.....Bailed dry 5,068 ft.; cutting screen.

BLUE RIDGE—FORT BEND COUNTY

Joe Collins' No. 1 R. C. Duff.....Drlg. gumbo 2,512 ft.
Gulf Production Co.'s No. 18 Luscher, south.....Spudded.
Navarro Oil Co.'s No. 9-A Robinson, west.....Drlg. sticky shale 4,962 ft.
Sinclair Oil & Gas Co.'s No. 1 Simms-Blakely.....Drlg. sandy shale 5,960 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Production Co.'s No. 32 Taylor.....No report.
Navarro Oil Co. and Texas Exploration Co.'s No. 19 Dooley, east.....Drlg. gumbo 3,140 ft.
Rio Bravo Oil Co.'s No. 12-A Settegast (workover).....Drlg. shale 5,223 ft.
Rio Bravo Oil Co.'s No. 18-A Settegast, west.....Cem. 9⅝-in. casing 4,510 ft.
Rio Bravo Oil Co.'s No. 19-A Settegast.....Location.

LIBERTY—LIBERTY COUNTY

Empire Gas & Fuel Co.'s No. 12 O'Brien.....Oil sand 3,512-38 ft.; cem. 8⅝-in. casing 3,502 ft.
The Texas Company's No. 7 Green, northwest.....Drlg. sandy shale 2,666 ft.

HULL—LIBERTY COUNTY

The Texas Company's No. 8 Hannah-Vacuum.....Fishing 5,117 ft.
The Texas Company's No. 2 Barrow.....Drlg. sand and shale 2,542 ft.

BIG CREEK—FORT BEND COUNTY

Gulf Production Co.'s No. 58 Davis.....Tested dry 4,246 ft.; drlg. 4,286 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 11 Mayes.....Fighting gas pressure 2,704 ft.
Pure Oil Co.'s No. 11-A Mayes.....Location.
Pure Oil Co.'s No. 5 Lost Lake.....Location.

NASH—BRAZORIA COUNTY

Rycade Oil Corp.'s No. 15 Wisdom (workover).....Drlg. shale, shell and sand 4,276 ft.
Rycade Oil Corp.'s No. 27 Wisdom.....Rig.

SOUR LAKE—HARDIN COUNTY

The Texas Company's No. 306 Texas Co. fee.....Rigging up.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 84 Cotton ..... To pump 1,037 ft.
Rio Bravo Oil Co.'s No. 84-A Cotton ..... To pump 539 ft.

GOOSE CREEK—HARRIS COUNTY

Humble Oil & Ref. Co.'s No. 78 Simms-Smith ..... Derrick.
A. F. Bradbury's No. 5 Gillette ..... No report.

SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 23 McFaddin (workover) ..... Pulling screen to deepen 4,148 ft.
Yount Lee Oil Co.'s No. 96 McFaddin (workover) ..... Pulling screen to deepen 2,342 ft.
Yount Lee Oil Co.'s No. 132 McFaddin ..... Oil sand 5,396 ft.
Yount Lee Oil Co.'s No. 133 McFaddin ..... Abandoned 5,047 ft.
Yount Lee Oil Co.'s No. 134 McFaddin ..... Comp. flowing 1,600 bbls. 4,711 ft.
Yount Lee Oil Co.'s No. 135 McFaddin ..... Drlg. 4,900 ft.
Yount Lee Oil Co.'s No. 136 McFaddin ..... Drlg. 2,630 ft.
Yount Lee Oil Co.'s No. 1 Greer & Hall ..... Drlg. 2,510 ft.
Yount Lee Oil Co.'s No. 33 Gladys City ..... Rig up to work over.
Yount Lee Oil Co.'s No. 53 Gladys City ..... Rig up to work over.

NORTH DAYTON—LIBERTY COUNTY

Victor Oil Co.'s (V. H. Borsodi) No. 1 Gulf ..... Comp. flowing 60 bbls. 5,134 ft.
Victor Oil Co.'s (V. H. Borsodi) No. 2 Gulf ..... Swabbed salt water 4,768 ft.; milling out 4,450 ft.
Houtex Oil Co.'s No. 1 Simmons & Brown ..... Total depth 5,340 ft.; sidetracking 4,960 ft.
Harrison Oil Co.'s No. 5 Quintette ..... Location.
The Texas Company's No. 1 Paraffine fee ..... Drlg. black shale 5,338 ft.

HIGH ISLAND—GALVESTON COUNTY

Gulf Production Co.'s No. 10 Smith ..... Drlg. gumbo 3,454 ft.
Marrs McLean's No. 18 Cade ..... Drlg. sand and lime 3,439 ft.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 23 Moore ..... Rigging up.
Gulf Production Co.'s No. 24 Moore ..... Rigging up.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Oil Co.'s No. 5 Esperson ..... Sidetracking 4,050 ft.
Cranfill-Reynolds Oil Co.'s No. 12 Esperson ..... Drlg. gumbo 2,356 ft.
Cranfill-Reynolds Oil Co.'s No. 13 Esperson ..... Sandy shale showing oil 2,256 ft.
Cranfill-Reynolds Oil Co.'s No. 4 Davis ..... Set screen 2,344 ft.
Cranfill-Reynolds Oil Co.'s No. 1 Vajdak (workover) ..... Fishing 7,069 ft.
Republic Production Co.'s No. 1 Moores Bluff ..... Drlg. water sand 3,190 ft.
Yount Lee Oil Co.'s No. 3 Moores Bluff ..... Drlg. shale 6,100 ft.

HANKAMER—LIBERTY COUNTY

Gulf Production Co.'s No. 6 Boyt ..... Set screen 3,512 ft.; comp. flowing 120 bbls.
Gulf Production Co.'s No. 7 Boyt ..... Drlg. gumbo 1,120 ft.
Gulf Production Co.'s No. 1 Lee ..... Drlg. sand and lime 4,796 ft.
Gulf Production Co.'s No. 1 Ezzell ..... Derrick.

BOLING—WHARTON COUNTY

C. S. Thomas' No. 1 Volney ..... Rig.
C. S. Thomas' No. 1 Taylor ..... Rig.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 1 Kay ..... Comp. flowing 500 bbls. 5,478 ft.
Houston Oil Co.'s No. 1 O'Brien, Block 5 ..... Drlg. hard lime 4,552 ft.
Houston Oil Co.'s No. 1 Strauch, Block 20 ..... Drlg. sand 4,452 ft.
Houston Oil Co.'s No. 1 City, Block 59 ..... Rig.
Houston Oil Co.'s No. 1 O'Connor ..... Changing rigs 512 ft.
Houston Oil Co.'s No. 1 West ..... Drlg. sandy lime 4,384 ft.
Houston Oil Co.'s No. 1 Rose Lambert ..... Drlg. gumbo and lime 4,944 ft.
Houston Oil Co.'s No. 2 Rose Lambert ..... Drlg. gumbo 2,544 ft.
Houston Oil Co.'s No. 1-A Fannie Heard ..... Drlg. sand 4,443 ft.
Houston Oil Co.'s No. 13 P. H. Rooke ..... Drlg. sand 3,683 ft.
Houston Oil Co.'s No. 7 Fannie Heard (workover) ..... Rig up to deepen.
Independent Oil & Gas Co.'s No. 2-C J. F. B. Heard ..... Drlg. sand 3,683 ft.
Independent Oil & Gas Co.'s No. 1 Mitchell ..... Derrick.
Independent Oil & Gas Co.'s No. 1 Mercy Academy ..... Comp. flowing 75 bbls. 5,384 ft.
Independent Oil & Gas Co.'s No. 1 M. F. Lambert ..... Drlg. sandy shale 6,244 ft.
Independent Oil & Gas Co.'s No. 1 Tiny Hyser ..... Oil sand 3,665-68 ft.; cem. casing.
Edwin M. Jones' No. 3-A J. F. B. Heard ..... Drlg. broken lime 1,659 ft.
Edwin M. Jones' No. 4-A J. F. B. Heard ..... Drlg. sand and lime 918 ft.
Larco Co.'s No. 5 Strauch ..... Rig.
Luling Oil & Gas Co.'s No. 1 J. W. Kay ..... Drlg. shale 3,744 ft.
Mission Drilling Co.'s No. 1 Holmes Heard ..... Fishing 1,093 ft.
Mission Drilling Co.'s No. 1 Joe Shay, Block 6 ..... Rig.
Mission Drilling Co.'s No. 1 O'Brien ..... Drlg. shale 5,394 ft.
Moody-Seagraves Prod. Co.'s No. 2 O'Brien ..... Oil sand 5,451 ft.; set screen.
Moody-Seagraves Prod. Co.'s No. 8 City ..... Drlg. hard sand and rock 677 ft.
Moody-Seagraves Prod. Co.'s No. 1-A O'Brien ..... Derrick.
Moody-Seagraves Producing Co.'s No. 3 O'Brien ..... Location.
Moody-Seagraves Producing Co.'s No. 1 Strauch, Block 64. Location.
Morgan Oil Corp.'s No. 1 St. John ..... Drlg. shale and lime 5,936 ft.
Morgan Oil Corp.'s No. 1 O'Connor ..... Drlg. hard shale 5,410 ft.
Morgan Oil Corp.'s No. 2 O'Connor ..... Drlg. shale and lime 4,580 ft.
Morgan Oil Corp.'s No. 3 O'Connor ..... Drlg. shale and lime 5,373 ft.
Morgan Oil Corp.'s No. 4 O'Connor ..... Drlg. gumbo 4,256 ft.
Pearson Properties, Inc.'s No. 2 Ryals ..... Drlg. plug 5,300 ft.
Pearson Properties, Inc.'s No. 1 Tobe Wood ..... Drlg. gumbo lime 3,216 ft.
Ed Price's No. 1 Mission River ..... Drlg. gumbo 2,980 ft.
Rutherford-Traylor Oil Co.'s No. 2 Cable ..... Set 18-ft. screen; comp. flowing 550 bbls. 3,700 ft. on 2-in. line.
Sun Oil Co.'s No. 5 Buckley ..... Drlg. gumbo 435 ft.
Union Producing Co.'s No. 2 Lambert ..... Pulling tubing 5,895 ft.
Union Producing Co.'s No. 3 Lambert ..... Drlg. sand and shale.
Union Producing Co.'s No. 4 Morgan-Vance ..... Drlg. core sand 3,676-83 ft.
Union Producing Co.'s No. 4 Morgan-Shelly ..... Circulating 3,652 ft.
Union Producing Co.'s No. 5 O'Brien ..... Drlg. sticky shale, boulders and sand 2,339 ft.
Union Producing Co.'s No. 6 O'Brien ..... Location.
Union Producing Co.'s No. 4 Powers ..... Total depth 5,483 ft.; set screen.
Union Producing Co.'s No. 5 Powers ..... Location.
Union Producing Co.'s No. 2 Shelton ..... Coring 5,800 ft.
Union Producing Co.'s No. 4 Mitchell ..... Shale and sand 5,464 ft.
Union Producing Co.'s No. 5 Mitchell ..... Rig.
Union Producing Co.'s No. 3 J. F. B. Heard ..... Drlg. gumbo 2,012 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co. and Gulf Ref. Co.'s No. 26 Miller ..... Drlg. sand 3,936 ft.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 28 Miller ..... Rig.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 29 Miller ..... Location.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 5 Freiberg & Wolf ..... Drlg. gumbo 3,350 ft.
Vacuum Oil Co. and Gulf Prod. Co.'s No. 7 Farquahar ... Drlg. gumbo 1,208 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 5 Caldwell ..... Abandoned 6,998 ft.
Calcasieu Oil Co.'s No. 19 Watkins ..... Rig.
Calcasieu Oil Co.'s No. 2 Verdine ..... Drlg. 2,640 ft.
Duhon Oil & Mineral Co.'s No. 1 Koonce ..... Cem. casing 140 ft.
Federal Petroleum Co.'s No. 1 Hebert ..... Location.
Gulf Refining Co.'s No. 1 Erwin ..... Derrick.
The Texas Company's No. 7 State ..... Building derrick.
Yount Lee Oil Co.'s No. 1 Duhon ..... No report.
Yount Lee Oil Co.'s No. 1 Portia ..... No report.
Yount Lee Oil Co.'s No. 3 R. Vincent ..... No report.
Yount Lee Oil Co.'s No. 4 Lacey ..... Drlg. gumbo 1,879 ft.

JENNINGS—ACADIA PARISH

Port City Oil Co.'s No. 12 Syndicate fee ..... Bailed dry 1,630 ft.
The Texas Company's No. 5 Rayne heirs, King tract ... Total depth 3,145 ft.; sidetracking.
Yount Lee Oil Co.'s No. 8 Houssiere-Latrielle, Section 47-9s-2w ..... Sandy shale showing oil 7,242-7,406 ft.; cem. casing.
Yount Lee Oil Co.'s No. 7 Crowley ..... Location.
Marrs McLean No. 11 Gray ..... To deepen.

VINTON—CALCASIEU PARISH

Gulf Refining Co.'s No. 50 Star-Vincent ..... Heaving shale 4,049 ft.; pulled in derrick.
Gulf Refining Co.'s No. 2 Gardner ..... Drlg. 3,256 ft.
Vinton Petroleum Co.'s No. 3 Matilda Gray ..... Milling to deepen 2,920 ft.
Vinton Petroleum Co.'s No. 5 Matilda Gray ..... Salt water; shut down 3,500 ft.
Vinton Petroleum Co.'s No. 7 Matilda Gray ..... Rig.

BAYOU BOUILLON—ST. MARTIN PARISH

Rycade Oil Corp.'s No. 5 Atchafalaya fee (workover).... Cleaning out 4,341 ft.
Rycade Oil Corp.'s No. 1 Woodyard Lake ..... Drlg. sand and sticky shale 3,652 ft.
Rycade Oil Corp.'s No. 10 Bouillon fee ..... Drlg. sand and boulders 1,342 ft.

STARKS—CALCASIEU PARISH

Adams Oil Co.'s No. 1 Roderick ..... No report.
J. O. Davis' No. 1 Industrial ..... Standing 3,775 ft.
Gulf Refining Co.'s No. 23 Lutcher-Moore ..... Cem. casing 580 ft.

SWEET LAKE—CAMERON PARISH

Magnolia Petroleum Co.'s No. 1 Sweet Lake ..... Location.
Pure Oil Co.'s No. 9 Yount Lee ..... Drlg. soft sand 6,366 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Refining Co.'s No. 2-A Hoskins ..... Comp. flowing 50 bbls. 3,395 ft.
Gulf Refining Co.'s No. 3 Hoskins ..... Rig.
Gulf Refining Co.'s No. 2 Lahaye ..... Drlg. sandy shale showing oil 3,698 ft.
Alex Rice, trustee's No. 1 Futral ..... Drlg. 4,459 ft.
Alex Rice, trustee's No. 2 Futral ..... Location.
Alex Rice, trustee's No. 3 Futral ..... Location.
Pure Oil Co.'s No. 1 Perkins ..... Rig.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Black Oil Co.'s No. 1 Lancashire, near Sealey ..... Drlg. shale 4,010 ft.
O'Hara et al's No. 1 Batla, near Raccoon City ..... Shut down 4,000 ft.

BRAZORIA COUNTY

The Texas Company's No. 1 Ewin, Harvey Little Sur. ... Total depth 5,511 ft.; reaming.
Mills Bennett Production Co.'s No. 1 Random, Allen .... Heaving shale 5,365 ft.; set screen 5,100 ft.
Mills Bennett Production Co.'s No. 1 Reese, Allen ..... Location.
Cullen & West's No. 1 Ward, Damon Mound ..... Spudded.
Faust et al's No. 5 Faust ..... Washing to bottom 4,083 ft.
Freeport Sulphur Co.'s No. 2,001 fee, Bryan Heights ..... Rig.
Layne et al's No. 6 Wisdom, Damon Mound ..... Drlg. sandy shale showing oil 2,302-2,404 ft.
Rucks & Patterson's No. 1 Hunter, southwest of Hoskins.. Shut down 1,185 ft.
Rycade Oil Corp.'s No. 1 Rapid City, Henry Austin Sur... Drlg. sand 5,203 ft.
Shell Petroleum Corp.'s No. 1 Blakely-Winston, Danbury ..... Plugged to 1,579 ft.; swabbed 124 bbls. fluid, 50 per cent oil.
Shell Petroleum Corp.'s No. 2 Blakely Winston, Danbury.. Drlg. sticky shale 2,002 ft.
Shell Petroleum Corp.'s No. 2 Proebste, Clemens Rock... Cap rock 615 ft.
Steel & Strickland's No. 1 Lockridge ..... Spudded and shut down.
United Oil Syndicate's No. 1 Moores, Francis Moore Sur. ..... Shut down 940 ft.

CHAMBERS COUNTY

Chicago Oil Corp.'s No. 1 Lawrence ..... Shut down 3,810 ft.
Shell Petroleum Corp.'s No. 1 Herff, Moss Bluff ..... Coring brittle shale 5,508 ft.
Pure Oil Co.'s No. 1 Kirby, Charles Tilton Survey ..... Drlg. gumbo and lime 4,883 ft.
Pure Oil Co.'s No. 1 J.E.K. Ranch, Oyster Bayou ..... Drlg. sand showing salt water 2,823 ft.
Superior Oil Corp.'s No. 1 Jackson ..... Shut down 3,504 ft.
The Texas Company's No. 1 Jackson, T.&N.O. Sur., Sec. 17 ..... Location.

COLORADO COUNTY

Gulf, Humble and Penn's No. 1 Wilson, John McCroskey Sur. ..... Drlg. shale 1,000 ft.

GRIMES COUNTY

Cranfill-Reynolds Oil Co.'s No. 1 Stoneham, Navasota ... Spudded.
John Deering's No. 1 Rossi, B.B.B.&C. Sur. ..... Abandoned 3,092 ft.

HARDIN COUNTY

D. O. Speights' No. 1 fee, near Batson ..... Drlg. gumbo 1,373 ft.

HARRIS COUNTY

Baldwin and associates' No. 1 Kitzman, Cypress ..... Shut down 4,247 ft.
Bert& Griffin's No. 1 Milroy, Aldine ..... Drlg. sand and shale 980 ft.
Cranfill-Reynolds Oil Co.'s No. 1 Rorick, J. Ogburn Sur... Drlg. shale 4,299 ft.
Humble Oil & Ref. Co.'s No. 7 Warren, Hockley ..... Drlg. hard sand 5,255 ft.
Humble Oil & Ref. Co.'s No. 1 Siadous, Mykawa ..... Drlg. hard sticky shale 5,757 ft.
Humble Oil & Ref. Co.'s No. 2 Minnetex ..... Standing 1,216 ft.
Sloan Prospecting Co.'s No. 1 Davis, Cedar Bay ..... Drlg. sand and shale 4,027 ft.; showing oil.
Strang Oil Co.'s No. 1 Good, Deer Park ..... Drlg. shale 4,950 ft.
Martin, Drake & Jones' No. 1 Haney ..... Drlg. shale 5,919 ft.

JASPER COUNTY

Helmerich & Payne, Inc.'s No. 1 C. L. Flourney ..... Location.

JACKSON COUNTY

The Texas Company's No. 1 C. A. Mitchell, G. Ewing Sur. ..... Drlg. shale 4,080 ft.

JEFFERSON COUNTY

Bayou Oil Co.'s No. 1 Hooks-Bordage, W. C. Dyches Sur. ..... Total depth 5,510 ft.
Deep Test Oil Co.'s No. 1 McFaddin, Chaisson Sur. ..... No report.
Gulf Production Co.'s No. 5 Burrell, Fannett ..... Drlg. oil sand 5,159 ft.
Gulf Production Co.'s No. 2-A Junker, Fannett ..... Drlg. gumbo 2,051 ft.
The Texas Company's No. 1 Fitzhugh, Big Hill ..... Total depth 5,863 ft.; waiting fuel.
The Texas Company's No. 3 Pipkin, Big Hill ..... Drlg. sand, shale and boulders 1,327 ft.
Westbury Oil Co.'s No. 1 West, Choate Sur. ..... Shut down 3,490 ft.

LIBERTY COUNTY

Gulf Production Co.'s No. 1 McFaddin, Moss Bluff ..... Drlg. shale 5,414 ft.
Humble Oil & Ref. Co.'s No. 1 Sabine Tram, Devers ..... Drlg. sticky shale and lime 2,969 ft.
Tucker et al's No. 1 Bell, Devers ..... Derrick.

MATAGORDA COUNTY

Cockburn et al's No. 1 Hawkins, Shepherds Mott ..... Drlg. shale 5,918 ft.
Watts Oil Co.'s No. 1 Titus, Wheelright Sur. ..... Drlg. gumbo 1,004 ft.

MONTGOMERY COUNTY

Kelley-Kaker's No. 2 Guerges ..... Shut down 1,915 ft.

ORANGE COUNTY

Gulf Production Co.'s No. 1 W. H. Starks, Port Neches... Drlg. sticky shale 3,767 ft.
The Texas Company's No. 2 Kuhn, Port Neches ..... Drlg. water sand 3,592 ft.
The Texas Company's No. 2 Stark, Port Neches ..... Sand and shale showing oil and gas 4,124-44 ft.; set screen.

WALLER COUNTY

Humble Oil & Refining Co.'s No. 1 J. N. Taub, B.B.B.& C. Sur. ..... Spudded.
Kirby Petroleum Co.'s No. 2 Davis, San Felipe ..... Drlg. shale 4,517 ft.
W. P. Morris' No. 1 Chapman, Donoho Sur. ..... Shut down 2,075 ft.

WASHINGTON COUNTY

W. Birdwell's No. 1 Schram, James Walker Sur. ..... Shut down 2,110 ft.
Clifton et al's No. 1 Pruiss, E. Alcorn Sur. ..... Drlg. shale 570 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Cuscamp, B. F. Sanders Sur. ..... Spudded.
Sun Oil Co.'s No. 9 Grote, Clay Creek ..... Drlg. rock 2,722 ft.
Sun Oil Co.'s No. 4 Clay, Clay Creek ..... Fishing drill stem 2,256 ft.
Sun Oil Co.'s No. 6 Hunt, Clay Creek ..... Location.
Sun Oil Co.'s No. 5 Janner, Clay Creek ..... Drlg. sandy shale 1,389 ft.

SOUTH LOUISIANA

ACADIA PARISH

Calcasieu Oil Co.'s No. 1 Hays, Sec. 10-8s-1w ..... Standing 6,629 ft.
Charles P. Siess' No. 1 Lyons, Sec. 4-10s-1e ..... Location.

CALCASIEU PARISH

Wilfred Lahay's No. 2 James ..... Standing 3,775 ft.

CAMERON PARISH

Shell Petroleum Corp.'s No. 15 Watkins, Black Bayou.... Location.
Vacuum Oil Co.'s No. 1 Cameron Meadows, Sec. 21-14s-13w ..... Resuming drilling 3,814 ft.
The Texas Company's No. 6 State, Calcasieu Lake ..... Location.

IBERIA PARISH

The Texas Company's No. 5 Vermillion Bay ..... Drlg. 659 ft.

IBERVILLE PARISH

Standard Oil Co.'s No. 5 Schwing, Bayou Blue ..... Spudded.
Standard Oil Co.'s No. 5 Wilbert, Bayou Blue ..... Drlg. 1,980 ft.
Standard Oil Co.'s No. 7 Wilbert ..... Derrick.
Standard Oil Co.'s No. 8 Wilbert ..... Location.
Standard Oil Co.'s No. 2 Case, Bayou Des Glaise ..... Location.

JEFFERSON PARISH

Humble Oil & Refining Co.'s No. 1 Delaware, Sec. 2-16s-23e ..... Rig.

JEFFERSON DAVIS PARISH

Shell Petroleum Corp.'s No. 1 Heyd, Iowa ..... Location.
M. L. Vincent's No. 1 Richards, Sec. 22-7s-3w ..... Rig.
Yount Lee Oil Co.'s No. 1 Courtney, Welsh ..... Drlg. 4,012 ft.
Yount Lee Oil Co.'s No. 1 Abbott, Welsh ..... Drlg. 3,805 ft.

LAFAYETTE PARISH

Pure Oil Co.'s No. 1 Marmetin, Carenero ..... Drlg. sand and gravel 297 ft.

LA FOURCHE PARISH

The Texas Company's No. 1 Leesville ..... Drlg. hard sand 5,189 ft.

PLAQUEMINE PARISH

Humble Oil & Refining Co.'s No. 3 Cockrell, Lake Grand Ecaille ..... Location.
Humble Oil & Ref. Co.'s No. 1 Lake Washington, Lake Grand Ecaille ..... Testing sand showing oil 5,152 ft.
Humble Oil & Refining Co.'s No. 2 Cockrell-Moran, Lake Grand Ecaille ..... Location.
Humble Oil & Ref. Co.'s No. 3 Cockrell, Lake Grand Ecaille ..... Rig.

ST. LANDRY PARISH

Herbert-Baker Oil Co.'s No. 1 Fisher, Sec. 10-3S-4e ..... No report.

ST. MARTIN PARISH

The Texas Company's No. 3 St. Martin, Hager ..... Drlg. 1,504 ft.

ST. MARY PARISH

Louisiana Land & Exploration Co.'s No. 1 Fox, Berwick .. Location.
Pure Oil Co.'s No. 2 Wax Lake, Sec. 12-17s-9e ..... Drlg. sandy shale 4,587 ft.
The Texas Company's No. 1 South Coast, Sec. 41-14s-10e .. Drlg. 1,816 ft.

TERREBONNE PARISH

Charles Paggi's No. 2 Evergreen, Sec. 145-15s-16e ..... Standing 1,818 ft.
The Texas Company's No. 4 State-Bay St. Elaine ..... Pulling screen 5,186 ft.
The Texas Company's No. 1 La. L. & E. Co., Bay Junope .. Abandoned in cap rock 4,849-4,935 ft.
The Texas Company's No. 3 State, Caillou Island ..... Rig.
The Texas Company's No. 4 State, Lake Barre ..... Drlg. gumbo 2,512 ft.
The Texas Company's No. 2-A State, Dog Lake ..... Drlg. sandy shale 4,822 ft.

SOUTHWEST TEXAS

(Continued from Page 56)

Rycade Pool in Maverick County and construction of the gas line by the Texas Gas Utilities is progressing and is 25 per cent completed. The Rycade is to develop gas for the line. No. 6 Chittim is shut down at 2,636 feet. No. 5 Chittim is drilling at 3,925 feet in lime and No. 5 Sullivan is down 5,607 feet and drilling. It was at approximately this depth the company got its big gas well spraying oil, discovery well of the area. This formation is said to be the Glenrose and the only part of Southwest Texas where Glenrose production has been found.

Brooks County

The Lasater Pool in Brooks County is still a pool of one well. Houston Oil Co., however, has set casing at 3,806 feet to test a sand at 3,807-14 feet in No. 1 Holbien-Wormser. This is 300 feet shallower than the discovery well. The same company has location made for its No. 1 Wormser-Holbien.

Humble Oil & Refining Co. is down 2,385 feet in its No. 2 William Singer. This is a companion hole to No. 1 which was lost and hence failed to test the geology of the proposition. No. 2 will be drilling a few weeks before it gets down to the place where it can tell a story.

In Old Mexico

There are two tests drilling on the Mexican side of the river opposite the Laredo district. Information from that territory comes only at rare intervals and is somewhat indefinite and incomplete but one of the tests is down around 3,800 feet and the other around 2,000 feet. Operators are always interested in tests in that area but very little drilling has been done.

Kendall County

P. B. Sterling is moving in a rig to drill another test in Kendall County. No. 1 Werner bailed to the bottom. It is not a dry hole, exactly as it will fill up with oil if allowed to stand. There is 300 feet of open hole in the well and he is arranging to case this and make another test. About 200 bbls. or more of oil were bailed from it, however, and this is sufficient to warrant more work in the territory. There are eight tests listed in the county since the showing was obtained in No. 1 Werner, which was the first test ever drilled in the county for oil.

The opportunity for production is in the Pennsylvanian and the question is whether there is much Pennsylvanian there to produce from. No deep drilling has been done to determine the thickness of the Pennsylvanian at that point.

Joe Bruner Field

Cranfill-Reynolds Pipe Line in the Joe Bruner Field has given notice it will purchase no more crude from that field. It was taking the production of three producers: Golden West Oil Co., Forest Oil Co., and J. H. Powell, trustee. It is the first pipe line to quit buying oil in that field.

Drilling in Burnett

J. P. Hobbs of San Antonio has started a test in Burnett County 4 miles east of the Town of Burnett, the first that anyone has attempted in that county which is right in the Llano uplift territory.

COMPLETIONS

Kohler Pool—Duval County

Humble Oil & Refining Co.'s No. 45 Kohler, 1,155 feet east line, 330 feet north line, Survey 144; total depth 1,750 feet; 20 bbls.

Jennings Pool—Zapata County

Nordan & Morris' No. 1-A I. G. Trevino, 150 feet southeast line, 150 feet east line, Block 6, Survey 65; total depth 1,252 feet; set 6⅝-inch casing at 1,235 feet; sand 1,236-52 feet; swabbing 300 bbls. S. R. C. Co.'s (Trinity Drillers, Inc.) No. 1 F. Cuellar, 150 feet northwest line, 150 feet east line, Block 12, Survey 65; total depth 1,250 feet; sand 1,237-50 feet; set 6⅝-inch casing at 1,237 feet; swabbing 300 bbls.

Pettus Field—Bee County

Humble Oil & Refining Co.'s No. 3 J. J. McKinney, 150 feet from west line, 1,200 feet south of No. 1 in the L. C. Randolph Survey; total depth 4,020 feet; flowing 800 bbls. through three-eighths inch choke. Union Production Co.'s No. 9 George Ray, 150 feet from east line of survey, 1,450 feet south of north corner of L. C. Randolph Survey, in the G. A. Kerr Survey; total depth 4,010 feet; flowing 800 bbls. through three-eighths inch choke.

Buchanan Pool—Caldwell County

Buchanan-Danciger's No. 2-A W. T. Cude, 150 feet from northeast corner of 21-acre lease, in the William Spillers Survey; total depth 2,442 feet; pumping 25 bbls.

Darst Creek—Guadalupe County

Empire Gas & Fuel Co.'s No. 3 Knoblock, 150 feet from southeast line, 170 feet from southwest line of tract, in the J. R. Robinson Survey; total depth 2,577 feet; swabbing 600 bbls. Gulf Production Co.'s No. 2-A Dix-McKean, 150 feet from southeast and southwest lines of 20-acre tract, in the J. R. Robinson Survey; total depth 2,562 feet; flowing 1,800 bbls. Humble Oil & Refining Co.'s No. 2 D. D. Baker, 472 feet from north line, 183 feet from east line of tract, in the J. C. Darst Survey; total depth 2,591 feet; swabbing 800 bbls. Sun Oil Co.'s No. 8 Knoblock, 150 feet from north and west lines of tract, in the J. R. Robinson Survey; total depth 2,584 feet; flowing 1,700 bbls. The Texas Company's No. 2 Dallas Wilson, total depth 2,620 feet, flowing 95 bbls. Same company's No. 3 Dallas Wilson, 150 feet from south line, 366 feet from west line of 50-acre tract, in the J. Darst Survey; total depth 2,622 feet; swabbing 950 bbls.

ABANDONED TESTS

Darst Creek—Guadalupe County

Sun Oil Co.'s No. 2 Manford, 150 feet from southwest line of tract, 300 feet southeast of No. 1 well, approximately 600 feet east of Penn Oil Co.'s Manford producer, in the J. Hodges Survey; total depth 2,806 feet; abandoned, dry.

NEW LOCATIONS

Darst Creek—Guadalupe County

Humble Oil & Refining Co.'s No. 6 D. D. Baker, 369 feet from north line, 50 feet from east line of tract, in the J. C. Darst Survey; total depth 1,800 feet; drilling in shale. Same company's No. 3 Yates-Wilson, 52 feet from north line, 90 feet from west line of tract, in the J. C. Darst Survey; total depth 1,860 feet; drilling in shale. Magnolia Petroleum Co.'s No. 2 A. Knodle, 450 feet from southwest line, 150 feet from northwest line of tract, in the J. R. Robinson Survey; rig up. Same company's No. 3 Rand Miller, 150 feet from northwest line, 450 feet from northeast line of 92-acre tract, in the J. B. Alexander Survey; spudded in. The Texas Company's No. 2 Dallas Wilson, total depth 2,620 feet. Same company's No. 3 Dallas Wilson, 150 feet south line, 366 feet from west line of 50-acre tract, in the J. C. Darst Survey; total depth 2,622 feet.

Adams Gas Field—Medina County

Witherspoon Oil Co.'s No. 1 Adams, 300 feet from north line, 3,200 feet from east line, in the P. E. Durst Survey, 12 miles southeast from Hondo; total depth 300 feet; rig up.

Pettus Field—Bee County

Nichols Oil Corp.'s No. 4 Hicks, 550 feet east of west line, 430 feet south of north line of Block 20, 930 feet due south of No. 3 Hicks, in the Jose Maria Urangua Survey; location. Cosden Oil Co.'s No. 2 McKinney, 860 feet from south line, 300 feet from east line of tract, in the South John Pace Survey; derrick. Same company's No. 3 McKinney, 360 feet from south line, 800 feet from east line of tract, in the South John Pace Survey; location. Glasscock Brothers' No. 1 Pettus Townsite, Block 41 of townsite; total depth 2,100 feet; drilling in shale. Humble Oil & Refining Co.'s No. 4 McKinney, 1,100 feet from northwest corner, 250 feet from northeast line of L. C. Randolph Survey; derrick.

Kohler Pool—Duval County

Humble Oil & Refining Co.'s No. 46 Kohler, 990 feet north line, 1,155 feet east line, Survey 144; rigging up.

Schoolfield-O'Byrne—Duval County

C. E. Long and others' No. 1 Bishop Duval Land Co., 2,800 feet north line, 160 feet west line, Survey 59; rigging up.

Cole Pool—Webb County

O. W. Killam's No. 5 Bruni, 270 feet northwest line, 203 feet southwest line, Adams Subdivision, Mariano Arispe grant, Block 26, Survey 8; rigged up to drill deeper from 2,326 feet.

Charco Redondo—Zapata County

C. R. Moore and J. W. Moore's No. 2 Adela G. de Flores, 150 feet northeast line, 150 feet southeast line, E. M. Doty Oil & Gas Subdivision, Block 151, Charco Rendondo grant; total depth 50 feet; standing.

Jennings Pool—Zapata County

Nordan & Morris-Allen & Morris' No. 1 E. Gutierrez, 4,410 feet southeast line, 450 feet northeast line, Share 4, Fansler Partition, Comitas grant; derrick. W. R. Shankle's No. 2 M. Trevino, 150 feet northeast line, 150 feet southeast line, Block 14, Survey 65; location.

DRILLING ACTIVITY

Cole Pool—Duval County

Cole Petroleum Co.'s No. 69 R. Benavides, 660 feet northeast line, 693 feet northwest line, Cole Subdivision, Mariano Arispe grant, Block 6, Survey 20; total depth 1,800 feet; drilling; sand 1,600-26 feet showed gas, sand 1,684-96 feet showed oil. Henne-Winch's (W. E. May) No. 1 R. Benavides, 175 feet southwest line, 205 feet southeast line, Cole Subdivision, Mariano Arispe grant, Block 4, Survey 22; total depth 1,020 feet; drilling (location changed). F. S. Bain-Miller I. Shaw's No. 1 S. Benavides, 1,950 feet west line, 180 feet north line, Survey 173; total depth 2,727 feet; sand 2,724-27 feet testing through tester.

Kohler Pool—Duval County

Simms Oil Co.'s No. 9 Dinn, 660 feet east line, 660 feet south line of NW SE, Survey 143; rigged up; standing. Humble Oil & Refining Co.'s No. 41 Kohler, 2,970 feet south line, 330 feet east line, Survey 165; location.

Roma Pool—Starr County

The Texas Company's No. 1-B V. C. de Guerra, 150 feet south line, 150 feet west line of north 1,173 acres, Share 92, Porcion 68 of Partition Porcion 67-68-69-70-71-72, Jurisdiction of Mier; total depth 3,666 feet; drilling.

Schoolfield-O'Byrne—Duval County

Magnolia Petroleum Co.'s No. 1 Lundell, 450 feet north line, 150 feet east line, SE, Survey 60; total depth 3,615 feet; drilling in sandy lime.

Aviator Pool—Webb County

O. W. Killam's No. 1-V A. M. Bruni, 178 feet east line, 1,180 feet north line, Block 22, Brown Subdivision, Albercas grant; total depth 3,562 feet; drilling in shale and boulders.

Carolina-Texas Pool—Webb County

E. D. Claggett and Sam Evans' No. 1 Webster, 150 feet south line, 990 feet west line, Survey 684; total depth 2,400 feet; drilling. W. R. Shankle's No. 2 Webster, 1,170 feet west line, 150 feet south line, Survey 684; rigging up.

Cole Gas Field—Webb County

Magnolia Petroleum Co.'s No. 2 A. Benavides, 150 feet north line, 150 feet east line, Survey 660; total depth 2,353 feet; set 6⅝-inch casing at 2,349 feet; sand 2,349-53 feet. Same company's No. 4 C. Benavides, 150 feet south line, 150 feet west line, Survey 662; location. S. R. C. Co.'s (Trinity Drillers, Inc.) No. 1 Montemayor, 150 feet north line, 150 feet west line, Block 8, Survey 64; location. S. R. C. Co.'s (Trinity Drillers, Inc.) No. 2 Trevino, 150 feet south line, 150 feet west line, Block 8, Survey 66; total depth 500 feet; drilling. French Oil Corp.'s No. 2-A Rosa Benavides, 550 feet north line, 150 feet west line, Survey 659; spudded in. Morris Drilling Co.'s No. 2 S. Benavides, 289 feet northwest line, 150 feet northeast line, Myrtle E. Hale Subdivision, Block 431, Mariano Arispe grant; total depth 2,655 feet; drilling; sand 2,649 feet tested oil and salt water.

Charco Redondo Pool—Zapata County

Mid-West Public Utilities' No. 1 Garcia, 450 feet southwest line, 450 feet southeast line of M. P. de Garza tract, Block 33, Pedernal grant; total depth 1,430 feet; drilling. C. R. Moore-J. M. Moore's No. 1 Adela G. de Flores, 330 feet northwest line, 330 feet northeast line, E. M. Doty Oil & Gas Subdivision, Block 99, Charco Redondo grant; total depth 150 feet; spudded in; set 10-inch casing at 150 feet.

Jennings Pool—Zapata County

O. W. Killam's No. 19-B Cuellar, 1,700 feet south line, 3,330 feet east line, Survey 277; total depth 800 feet; drilling. Morris & Allen-Nordan & Morris' No. 1 J. G. Gutierrez, 150 feet northeast line, 150 feet northwest line, Share 3, Fansler Partition, Comitas grant; rig up. Nordan & Morris' No. 1-B Trevino, 1,233 feet southwest line, 150 feet northwest line, Block 15, Survey 65; total depth 500 feet; drilling. Alamo Drilling & Leasing Co.'s No. 1 Trevino, 450 feet west line, 150 feet south line, Block 1, Survey 66; location. Same company's No. 2 Trevino, 150 feet east line, 150 feet south line, Block 1, Survey 66; derrick. Same company's No. 3 Trevino, 750 feet east line, 150 feet north line, Block 1, Survey 66; location. O. & A. Co.'s (John J. O'Hern) No. 2 Gracia, 150 feet northeast line, 450 feet northwest line, Share 3, Fansler Partition, Comitas grant; spudded in; sand 1,027-41 feet tested estimated 8,000,000 feet of gas; coring deeper. Penny Production Co.'s No. 1 Trevino, 300 feet southeast line, 200 feet northeast line, Marts & Beavens Subdivision of Porcions 2 and 3, Block 6, Survey 4; total depth 250 feet; drilling. Arnold & Ahler (Wicker and others) No. 1 M. Garza, 450 feet northeast line, 450 feet northwest line, Block 1, Subdivision Zorro Ranch, Comitas grant; total depth 861 feet; drilling in lignite and sand. O. W. Killam's (Killam-Duggan) No. 17-B Cuellar, 150 feet south line, 150 feet southwest line, Survey 277; location. O. W. Killam's (Killam-Duggan) No. 18-C Cuellar, 2,804 feet southeast of northwest corner, 150 feet southwest line of Survey 278; total depth 1,820 feet; drilling. O. W. Killam's No. 23 Cuellar, 2,926 feet northwest line, 150 feet northeast line, Cerrito Blanco grant; derrick. O. W. Killam's No. 23 Cuellar, 150 feet northeast line, 28 feet northwest line of May & Holder 80-acre tract or 4,764 feet northwest line of Cerrito Blanco grant; total depth 1,976

feet; drilling in rock. H. Muckelroy, Jr.'s No. 3 Trevino, 460 feet south line, 300 feet east line, Block 25, Survey 412; rigged up to drill deeper from 1,281 feet. South Texas Production Co.'s No. 9 Measles and others, 3,830 feet southeast line, 660 feet northeast line, Cerrito Blanco grant; total depth 1,756 feet; drilling. Alamo Drilling & Leasing Co.'s No. 2 Trevino, 500 feet east line, 150 feet north line, Block 1, Survey 66; total depth 200 feet; drilling. R. F. Blankenship's No. 2 Garza, 425 feet west line, 425 feet north line, Block 2, Survey 412; total depth 1,650 feet; preparing to drill deeper from 1,650 feet.

Darst Creek—Guadalupe County

Empire Gas & Fuel Co.'s No. 5 Dowdy, 792 feet from north line, 150 feet from east line of tract, in the J. C. Darst Survey; derrick. W. H. Gee's No. 1 Denman, 2,684 feet from west line, 3,350 feet from south line, in the A. S. Emmett Survey; total depth 2,910 feet; drilling in Georgetown. Gulf Production Co.'s No. 2 Malear, 450 feet from southwest line, 150 feet northwest line of 72-acre tract, in the J. R. Robinson Survey; location. Magnolia Petroleum Co.'s No. 3 J. M. Richburg, 300 feet northeast of No. 2, 750 feet from southwest line, 150 feet from southeast line of lease, offset to Gulf's No. 2 Malear, in the J. R. Robinson Survey; total depth 1,600 feet; drilling in shale. Penn-Tex Oil Co.'s No. 1 S. M. Roamel, 150 feet from south line, 1,400 feet west of east line of 150-acre tract, in the J. R. Robinson Survey; total depth 2,440 feet; drilling in hard Taylot. The Texas Company's No. 4 Posey, 150 feet out of east corner of west 40-acre tract; total depth 2,605 feet; set casing at 2,602 feet. Same company's No. 5 Posey, 150 feet out of north corner of east 40-acre tract; total depth 2,541 feet; drilling in Del Rio.

Buchanan Pool—Caldwell County

Ed. Lange and others' No. 1 Geoffery, 745 feet south and north line, 150 feet east and west line of lease or 1,776 feet east and west line, 3,496 south and north line of survey, in the C. M. Cannon Survey; total depth 2,030 feet; broken chalk, Serpentine; swabbed dry.

Pettus Field—Bee County

Houston Oil Co.'s No. 1 J. R. Beasley, center of Block 36, Pettus Townsite; total depth 3,350 feet; drilling in shale.

Lasater Pool—Brooks County

Houston Oil Co.'s No. 1 Holbein-Wormser, total depth 6,003 feet, set 6⅝-inch casing at 3,806 feet, sand 3,807-14 feet.

Cartwright Pool—Live Oak County

Houston Oil Co.'s No. 22 Cartwright, 500 feet east of No. 18, in the J. M. Colchado Survey; setting surface casing. Same company's No. 1 R. Boothe, 3,000 feet from west line, 300 feet south line, in the M. B. Kilvin Survey; total depth 4,075 feet; drilling in hard shale.

Agua Dulce Pool—Nueces County

Houston Oil Co. of Texas' No. 1 M. E. Brooks, 330 feet from north and east lines of fractional Section 29, Benton Pasture Subdivision, Los Sauces grant; total depth 3,510 feet; drilling in shale.

Nursery Pool—Victoria County

Humble Oil & Refining Co.'s No. 3-A Jay J. Welder, 1,634 feet southeast line, 736 feet southwest line, in the D.L.&C. Survey; total depth 5,884 feet; dry gas, 1,250 pounds rock pressure on 5¾, 1,050 pounds rock pressure on 4⅛-inch; estimated 500,000 feet of gas.

OKLAHOMA FIELDS

(Continued from Page 50)

Pool to the new Wanette Pool. Independent Pipe Line Co. announced plans for the new 4-inch line from its station in Section 19-7-5, in the St. Louis Pool, to the new pool, to serve its own leases in Sections 22 and 15-6-3. The Sinclair Pipe Line Co. and the Tidal Pipe Line Co. now have pipe lines into the Wanette area.

Successful Deeper Drilling

Deeper drilling increased the production of an old well in the West Chandler area. New producers are due for completion within a few days from the deep horizon. Drilling deeper has increased the production of the Magnolia Petroleum Co.'s No. 2 Benedict, NE cor. SE NW, Section 7-14-4, Lincoln County, from 2,920 bbls. to 4,905 bbls. It was first deepened 3 feet, to a total depth of 5,080 feet, where it gauged 4,105 bbls. and then 2 feet deeper to a total depth of 5,082 feet, where it was making 212 bbls. an hour. The old total depth of the well was 5,077 feet. The well is located in the northwest part of the pool, and the pay was found in the Wilcox sand. Five other tests were drilling below the 4,000-foot level and several of these are expected to be in the pay horizon in a few days. Magnolia Petroleum Co.'s No. 3 Staubus, SW cor. SE, Section 8-14-4, was fishing for an underreamer at a total depth of 5,127 feet. Same company's No. 4 Staubus had a hole full of water in the Wilcox sand at 5,110 feet and was shut down.

In the Perry Area

Drilling operations in Noble County are being revived. The Magnolia Petroleum Co. has started operations at three locations and announced two others. Gypsy Oil Co.'s wildcat test has found water. Magnolia Petroleum Co.'s No. 2 Weeder, SW cor. NE, Section 22-21-2w, is a location west of Perry. Gypsy Oil Co.'s No. 1 Bergstrom, SE cor. NE, Section 28-22-1w, was straightreaming the casing at 4,887 feet. The test found a hole full of water at 5,087 feet, and will be drilled deeper. Magnolia Petroleum Co.'s No. 2 Young was flowing 800 bbls. a day from sand at 5,100-05 feet. This well was the discovery in the area and has been producing since the first of the year. The north offset to the discovery well, same company's No. 4 Sams, SE cor. SW SW, Section 15-21-2w, was drilling at 5,077 feet in Viola lime with nothing showing.

In the northwestern part of the State the deepest drilling test in Oklahoma was finding it difficult to make hole. The test was Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Section 14-26-24w, Harper County. After rigging up standard tools at a total depth of 8,580 feet, drilling operations were resumed and only 2 feet of new hole was made after drilling two weeks. The test has been drilling in the Mississippi lime for the last 1,700 feet, and was still in that formation at 8,582 feet. Same operator's No. 1 Showwalter, C SW SW, Section 33-27-16w, Woods County, has cemented a caving hole at a total depth of 6,790 feet. The company has been delayed making a headway at this test until rotary tools could be again rigged up.

Work in Alfalfa County

Activity in Alfalfa County is centering around Cherokee, the county seat. The recent showing of gas in a core drilled hole in the southeastern part of the county has resulted in other core drills moving into the area. The Empire Oil & Refining Co. has a core drill unit within 5 miles of the county seat. The Gypsy Oil Co.'s block in the northwestern part of the county has been core drilled. The test of Smith & Foster in Section 12-27-11w, north of Cherokee, is still shut down at 1,232 feet. The Mid-Kansas Oil & Gas Co. is core drilling its block in the southeastern part of the county.

Greater Seminole Production

A gain of approximately 17,800 bbls. a day was recorded in the Greater Seminole area for the week ending June 9. The total daily average production for the same period was 300,881 bbls. The Seminole area averaged 214,126 bbls. a day from 1,881 wells. The daily average gauges from the different pools in Greater Seminole area were as follows:

Pool—	Wells	Bbls.
Little River	372	40,990
East Little River	81	17,739
Carr City	57	6,622
Maud	138	3,856
Mission	104	9,495
Bowlegs	280	22,728
Earlsboro	288	31,699
South Earlsboro	23	15,060
East Earlsboro	155	29,641
Seminole	266	23,718
East Seminole	33	3,189
Searight	84	9,389
Total	2,777	300,881

Greater Seminole Oil Shipments

Oil shipments show an increase for the week ending June 11 from the previous week. The shipments from the Seminole, Asher, Pearson, St. Louis and Konawa Pools were 265,679 bbls. The daily average shipments by companies were as follows:

Company—	Seminole (bbls.)	Asher, Pearson-St. Louis (bbls.)	Konawa (bbls.)
Barnsdall	2,783	....	....
Champlin	2,975	....	563
Continental	249	....	....
Consolidated	427	251	....
Cosden	7,228	100	1,701
Deep Rock	4,703	826	....
Empire	2,663	....	....
Gulf	28,910	3,159	1,471
Magnolia	9,824	6,826	....
Oklahoma	24,980	....	300
Prairie	18,419	5,782	6,269
Prod. & Ref.	2,762	....	....
Pure	6,174	....	....
Shell	12,427	2,680	6,709
Sinclair	45,820	11,667	2,133
Texas	15,348	....	4,483
Tidal	11,390	4,755	....
White Oak	1,982	....	....
Total	199,164	36,046	23,629
Tank cars	6,840		
Grand total	206,004		

Oklahoma City Oil Shipments

The daily average pipe line and tank car shipments from the Oklahoma City Pool were 113,158 bbls. for the week ending June 11. The total shipments by companies for the same seven days were as follows:

Company—	Bbls.	Dly. av.
Empire	133,380	19,054
I. T. I. O.	56,335	8,046
Magnolia	97,242	13,892
Oklahoma	125,673	19,382
Prairie	169,495	24,213
Shell	32,376	4,625
Sinclair	94,865	13,552
Tidal	70,314	10,045
Healdton	2,440	349
Total	782,120	113,158

Oklahoma City's Shut-in Production

The initial production of the shut-in wells in the Oklahoma City Pool that have been allowed to produce for 24 hours or less as of June 14 and are now shut in for the proration period was 529,818 bbls. The initial production and the approximate dates each well will be opened for its regular producing period follows:

I. T. I. O.:			
Sudik	*1	[19]9,000	.....
M. Sudik	*2	[11]1,939	6-14-30
L. Jones	*6	[5]5,092	6-17-30
Ferndale	*1	16,020	6-19-30
M. Knox	*1	[4]4,052	6-17-30
Werner-Farley	*2	[4]960	6-20-30
W. Canfield	*2	[10]166	6-20-30
Jones	*5	10,298	6-29-30
Warden	*1	6,758	7- 1-30
Werner-Farley	*3	[2]2,096	7- 2-30
Werner-Speegle	*3	[2]2,355	7- 2-30
H. W. Jones	*1	[13]1,129	7- 4-30
Borden	*1	[2]2,080	7- 5-30
E. Farley	*1	[5]104	7- 5-30
Salsman	*2	4,205	7- 8-30
C. Brokaw	*4	[8]435	7- 6-30
Ferndale Comm.	*2	[4]4,142	7- 7-30
N. Emerson	*5	[10]2,830	7-12-30
H. W. Jones	*2	[9]12,290	7-13-30
E. Trosper	*2	[15]5,000	7-13-30
B. Johnson	*4	[2]2,334	7-13-30
N. Emerson	*8	[24]4,052	7-14-30
N. Emerson	*10	[6]855	7-15-30
C. E. Trosper	*1	20,016	7-16-30
L. Jones	*8	[16]155	7-20-30
Salsman	3	942	7- 7-30
Salsman	1	[12]304	7- 8-30
Precure	1	[10]6,000	7- 9-30
L. Jones	3	10,184	5-29-30
H. W. Jones	2	24,586	7- 8-30
Trosper Hughes	*1	[3]2,000	8- 7-30
Jones Community	*2	17,164	8- 5-30
Jones Community	3	[10]6,000	7- 9-30
A. Brokaw	4	[3]32	8- 6-30
N. Emerson	*7	1,687	8- 5-30
C. Brokaw	3	11,303	8- 4-30
Theimer	*3	[21]0,540	8- 7-30
Precure	*1	[18]385	8- 7-30
Trosper	*11	4,285	8- 3-30
N. Emerson	*9	3,274	8- 7-30
L. Jones	*7	2,463	8- 7-30
M. Uncil	*2	2,050	8- 4-30
Salsman	*4	[22]225	8-14-30
W. Franklin:			
Theimer	*3	16,690	8- 7-30
Cromwell:			
Trosper Park	*18	[3]1,902	7- 7-30
Trosper Park	16	[3]268	7- 8-30
Trosper Park	*17	17,953	8- 7-30
Trosper Park	*15	5,240	8-13-30
School Land 54	12	[12]0,000	8- 8-30
School Land 54	8	[10]0,000	8- 8-30
School Land 54	*3	4,420	8-13-30
School Land 54	*4	[9]0,050	8-14-30
Sinclair:			
Vincl	*4	[23]85	7- 5-30
Kinter	10	115	8- 4-30
Vincl	*5	[25]0,730	8-14-30
Vincl	*8	[3]3,720	8-14-30
School Land 67	*2	6,770	8-14-30
Coline:			
Olds	*9	[1]1,169	7- 7-30
Olds	*7	[7]819	7- 8-30
Warren	*3	[6]914	6-30-30
Warren	9	5,544	8- 8-30
Clauer	1	[1]1,203	8- 1-30
Warren	8	9,298	8- 4-30
Olds	*10	[2]2,119	8- 2-30
Olds	*11	[11]1,284	8-15-30
Slick:			
Hoopes	*5	[4]815	7- 6-30
Hoopes	*6	2,237	7- 8-30
Houghton	1	16,924	6-21-30
Bailey	1	10,358	6-18-30
Martin	1	[14]0,045	7- 9-30
Hoopes	*7	3,995	8- 1-30
Dunivan	*1	[13]3,482	8-15-30
Hoopes	*8	798	8-14-30
Carter	*1	[9]9,891	8-16-30
Townsend	*1	[4]4,798	8-16-30
Heenan & Co.:			
Cunningham	*2	[12]0,000	8-11-30
Skelly:			
Hoopes	*6	[5]441	7- 7-30
Hoopes	8	12,339	7-10-30
Mid-Texas:			
Community	*1	[21]3,000	8- 6-30
Tom Slick Oil Co.:			
Hoopes	*8	[20]572	8- 5-30
Hall & Briscoe:			
Holmes	*1	[9]9,743	7-31-30
Total	81	529,818	

*Wells producing from the Simpson sand. All others are producing from the Arbuckle lime.

[1]Estimated. [2]Thirteen hours. [3]Fifteen minutes. [4]Twelve hours. [5]Five hours. [6]Eighteen hours. [7]Seventeen hours. [9]Twenty and one-half hours. [10]Twenty-one hours. [11]Sixteen hours. [12]Twenty-three and one-half hours. [13]Eight and one-half hours. [16]Thirteen hours, fifty-five minutes. [15]Six and one-third hours. [16]Eighteen and one-quarter hours. [17]Sixteen hours. [18]Three hours. [19]Thirty-five minutes. [20]Fifteen and three-quarters hours. [21]Eighteen and one-half hours. [22]Six hours.

These notations indicate the number of hours the wells produced on their initial production test.

Cotton County

Shasta Oil Co.'s No. 5 Watkins, NE cor. NW NE SW, Section 1-2s-10w, is drilling at 2,000 feet. Location has been made for No. 7 Cobb, NE cor. NW SE NE, Section 2-2s-10w. Location for No. 8 Cobb has been made, NE cor. SE SE NE, Section 2-2s-10w. No. 9 Cobb is a location, C SE NE, Section 2-2s-10w. Harris & McNeal's No. 1 Shackelford, NE cor. SW, Section 34-1s-10w, has been completed for 15 bbls. in sands 2,165-2,201 feet. Jenkins & Arington's No. 1 McCloud, NE cor. SW, Section 14-2s-11w, has been abandoned at 2,370 feet. Shasta Oil Co.'s No. 13 Patterson, SW cor. SE NW, Section 1-2s-10w, has been completed for 150 bbls. in sand 2,208-22 feet.

Caddo County

Magnolia Petroleum Co. has the rig up for No. 3 C. Edwards, SE cor. SW, Section 25-6-10w. No. 2 C. Edwards, SE cor. SW, Section 25-6-10w, has been abandoned at 2,575 feet. Mid-Kansas Oil & Gas Co.'s No. 2 Gregory, SE cor. NE NW, Section 31-6-9w, has been abandoned at 4,523 feet.

Grady County

Meridian Gas Co. made location for No. 1 Haynes, CNL S half SW SW, Section 30-4-7w. Joe Ray is moving in tools for No. 1 Johnson, SE cor. NE NW, Section 6-3-5w. Meridian Gas Co.'s No. 1 Miller, NE cor. NW NW, Section 31-4-7w, has been completed for 8,000,000 feet of gas in sand 2,061-2,220 feet.

Hughes County

Independent Oil & Gas Co. and others' No. 1 Neal, NE cor. NW, Section 35-9-9, is a rig. R. P. Wheelan's No. 1 Peters, SE cor. SW NE, Section 8-6-10, is drilling at 200 feet.

Jefferson County

Farland Oil Co.'s No. 1 Riverbed, SW cor. SE SE, Section 3-7s-5w, made a 75-bbl. well in sand 1,082-1,107 feet.

Osage County

Leahy and others' No. 1, SE cor., Section 33-26-9, is rigging up to deepen. Corona Oil Co. and others' No. 19, SW cor. NW NW, Section 13-23-8, is preparing to deepen from 2,160 feet. Clint Moore Estate and others' No. 3, SE cor. SW SE, Section 35-22-8, is a machine. A. G. Oliphant's No. 1, SE cor. NE, Section 10-21-8, is rigging up. Clint Moore Estate and others moved a machine in for No. 9, CEL W half NW, Section 16-21-9. Sand Springs Home Oil Co. has a machine on the location for No. 11, C NE, Section 5-20-11. Empire Oil & Refining Co.'s No. 2, SW cor. NW SW, Section 23-27-11, has been completed for 70 bbls. in Bartlesville sand 1,717-42 feet. Peters Petroleum Co. and others' No. 6, CWL E half NW, Section 27-27-11, made 40 bbls. in Bartlesville sand 1,692-1,710 feet. Skelton & Moore's No. 10, SW cor. NW SE, Section 32-26-12, made 35 bbls. in sand 1,612-36 feet. J. H. Alexander and others' No. 3, SW cor., Section 36-25-

11, has been completed for 10 bbls. in Bartlesville sand 1,604-59 feet.

Cleveland County

Indian Territory Illuminating Oil Co. has the rig on the ground for No. 3 Reynolds, NW cor. NE NW, Section 6-10-2w, Oklahoma City Field.

Oklahoma County

Indian Territory Illuminating Oil Co. has the cellar dug for No. 6 Theimer, SW cor. SE, Section 1-11-3w, Oklahoma City Field. Location has been made for No. 8 Theimer, NW cor. SE, Section 1-11-3w. Location was staked for No. 4 H. W. Jones, SE cor. SW, Section 1-11-3w. Empire Oil & Refining Co. made location for No. 1 Gustine, SW cor. NE, Section 1-11-3w. Anderson & Prichard moved the rig in for No. 1 Orphanage, NE cor. SE NW, Section 2-11-3w. The rig is on the ground for No. 1 Wilson-Carpenter, Block 17, Rosedale Addition, NW cor. SW NE, Section 2-11-3w. No. 1 Keys, CWL NW NE, Section 2-11-3w, block 12, Rosedale Addition, is a location. The cellar has been dug for No. 1 Moore and others, SE cor. NE NW, Section 2-11-3w. Wirt Franklin Petroleum Corp. is erecting the rig for No. 2 Holder, SW cor. SE SW, Section 2-11-3w. Tom Slick Oil Co. and others made location for No. 1 Houston, SW cor. NE SW, Section 2-11-3w. Tom Slick Oil Co. and Atkinson made location for No. 1 Clegg, NW cor. NE SW, Section 2-11-3w. Pace Petroleum Co. has the rig on the ground for No. 1 Iowa Addition, Block 6, Lot 15, Compton Addition, NW cor. SW SW, Section 2-11-3w. Champlin Oil & Refining Co. made location for No. 1 Naden, SW cor. SE NW, Section 2-11-3w, Block 9, Lots 23 and 26, Armourdale Addition. Gwin Brothers Drilling Co. and others has a rig being built for No. 1 Kammerdeimer, SW cor. NE NW, Section 3-11-3w, Block 3, Lots 98 and 106, McCornacks Factory Addition. Hall & Briscoe made location for No. 5 Holmes, NW cor. SW SE, Section 10-11-3w. Tom Slick Oil Co. staked location for No. 1 Hightower, NE cor., Section 10-11-3w. C. C. Julien and others No. 1, Block 2, Lot 7, Frost Heights, NW cor. SE SE, Section 10-11-3w, is a cellar. Indian Territory Illuminating Oil Co. is building the rig for No. 1 Hammer, NW cor. SW, Section 11-11-3w. The rig is on the ground for No. 3 Corff, SE cor. SW SW, Section 11-11-3w. No. 4 Corff is a rig on the ground, SW cor., Section 11-11-3w. The rig is being built for No. 4 Coppinger, NW cor., Section 11-11-3w. No. 5 Coppinger is a rig under construction, SW cor. NW NW, Section 11-11-3w. No. 6 Coppinger, NW cor. SW NW, Section 11-11-3w, is a rig under construction. The rig for No. 7 Coppinger is being built, SW cor. NW, Section 11-11-3w. Indian Territory Illuminating Oil Co. made location for No. 7 Theimer, NW cor. NE, Section 12-11-2w. Cromwell-Franklin Oil Co. has the cellar dug for No. 1 Lincoln Park, SW cor., Section 12-12-3w. Indian Territory Illuminating Oil Co. made location for No. 3 Carrico, SE cor. NW NW, Section 14-11-3w. Location for No. 4 Carrico was made, NE cor. NW NW, Section 14-11-3w. No. 5 Carrico is a location, NW cor., Section 14-11-3w. Gwin Brothers Drilling Co. and others' No. 1 Stotts, SW cor. NE SE, Section 15-11-3w, is rigging up. Tom Slick Oil Co. made location for No. 1 Thornton, NE cor. SE, Section 15-11-3w, Block 2, Fruitland Addition. Indian Territory Illuminating Oil Co. made location for No. 9 Johnson, NW cor. SE NW, Section 25-11-3w. Location has been made for No. 8 Peterson, SW cor. NE SW, Section 25-11-3w. No. 2 Sudik is a location, SW cor. SE SW, Section 31-11-2w.

Indian Territory Illuminating Oil Co.'s No. 2 Jones Community, NE cor. SW SW, Section 1-11-3w, Oklahoma City Pool, has been completed for 17,164 bbls. in sand 6,395-6,478 feet. Tom Slick Oil Co.'s No. 1 Martin, SE cor. NE SW, Section 1-11-3w, made 9,704 bbls. in sand 6,390-6,470 feet. Cromwell-Franklin Oil Co.'s No. 17 Trosper Park, SE cor. SW NW, Section 12-11-3w, has been completed for 17,953 bbls. in sand 6,325-92 feet. Indian Territory Illuminating Oil Co.'s No. 3 E. Theimer, SW cor. NW NE, Section 12-11-3w, made 16,690 bbls. from sand 6,310-64 feet. Cromwell-Franklin Oil Co.'s No. 15 Trosper Park, NE cor. SW NE, Section 13-11-3w, has been completed for 5,240 bbls. in Arbuckle lime 6,030-6,400 feet. Indian Territory Illuminating Oil Co.'s No. 1 Emmerson-Joyce, NE cor., Section 25-11-3w, an old well, plugged back from 6,664 feet, ripped pipe and was shut in for 2,000,000 feet of gas. No. 3 Johnson, SE cor. NW, Section 25-11-3w, was deepened from 6,573 feet to 6,630 feet and made 1,403 bbls. Sinclair Oil & Gas Co.'s No. 4 School Land No. 54, NE cor. NW NE, Section 36-11-3w, has been completed for 9,050 bbls. in 12 hours from sand 6,370-6,666 feet. Tom Slick Oil Co. and others' No. 6 Hoopes, NE cor. SE NE, Section 31-11-2w, had sand 6,304-6,530 feet and made 2,237 bbls. No. 8 Hoopes, SW cor. SE NE, Section 31-11-2w, has been completed for 798 bbls. in Arbuckle lime 6,639-54 feet.

Pawnee County

Selby Oil & Gas Co.'s No. 1 Lauderdale, NE cor., Section 1-20-7, is an old well drilling deeper at 2,450 feet. Hay and others moved a machine in for No. 7 Copeland, CSL NW SW, Section 26-20-9.

Pottawatomie County

The Texas Company is erecting the rig for No. 1 Ogee, NE cor. SE NE, Section 17-8-5, Maud area. Pure Oil Co. and others' No. 1 Caulding, NE cor. SE NW, Section 19-9-5, Earlsboro Field extension, flowed 225 bbls. from Hunton lime 4,068-90 feet. Indian Territory Illuminating Oil Co.'s No. 1 Butler, SW cor. NW, Section 23-6-3, West Asher Pool, has been completed for 1,800 bbls. in sand 3,480-3,506 feet. Wilcox Oil & Gas Co.'s No. 1 Atkins, NW cor. SW, Section 23-6-3, made 2,176 bbls. in sand 3,512-29 feet.

Carter County

Schermerhorn and others' No. 5 Crockett, SW cor. NE SW, Section 23-1s-3w, is a location. Trevelyn Oil Co. is building the rig for No. 1 W. Mitchell, SW cor. NW SE, Section 24-1s-3w. Magnolia Petroleum Co. is erecting the rig for No. 1 Harmon, NW cor. SW, Section 28-1s-2w.

Creek County

Tidal Oil Co. made location for No. 1 Pigeon, SE cor. NE, Section 36-19-7. Gled Oil Co. has a machine on the location for No. 1 Field, NW cor. SW, Section 31-19-8. National Refining Co.'s No. 7 Futrell, SE cor. NW SE, Section 1-19-9, is drilling at 1,000 feet. E. L. Robinson and others' No. 1 Davis, SW cor. NW, Section 21-19-9, is drilling at 350 feet. Hulbert and others' No. 1-A George, SE cor. NE SE, Section 23-18-11, is a rig. Lima Oil & Gas Co.'s No. 1 Bigpond, NW cor. NE SE, Section 36-15-7, is spudding. G. Colvin and others' rig is up for No. 1-A Greenwood, NW cor. SW NE, Section 4-14-10. Abbott and others' No. 1 Allen, NW cor. SE NW, Section 12-19-9, has been abandoned at 2,675 feet. Phillips Petroleum Co. and Gled Oil Co.'s No. 7 Koch, SW cor. NE, Section 20-19-9, is making 200 bbls. from Skinner sand 2,262-95 feet. Riverland Oil Co. and F. Billingslea's No. 1 B. Fife, SW cor. SE NW, Section 24-17-8, has been abandoned at 3,580 feet. Wilcox and Whitten's No. 5, NE cor. SE SE NW, Section 11-17-10, has been completed for 1,500,000 feet of gas in sand 1,565-1,600 feet.

Garfield County

U. S. Royalty Corp. of America's No. 2 Clark, C SW SW, Section 4-21-3w, is spudding. Champlin Oil & Refining Co.'s No. 1 Gibson, SW cor. SE SE, Section 25-23-4w, has been completed for 394 bbls. in lime 5,208-26 feet.

Grant County

Boucher and others' No. 1 Dedmond, SW cor. SE, Section 12-28-4w, is dry and abandoned at 5,070 feet.

Kay County

Waggoner and others made location for No. 2 Van Sious, C SE SW, Section 18-25-2.

Le Flore County

Hiatt Gas Co.'s No. 1 Fair Grounds, NE cor., Section 35-7-25, has been completed for 500,000 feet of gas in sand 2,395-2,455 feet.

Marshall County

Max Westheimer's No. 5 Davis-Sullivan, NW cor. SW SE NW, Section 30-5s-6, is drilling at 290 feet. Bilbo Oil Corp.'s No. 6 Null, NW cor. SW NE NW, Section 24-5s-5, Madill Pool, has been completed for 50 bbls. in sands 614-27 feet and 657-84 feet. Magnolia Petroleum Co.'s No. 1 Dillie, SE cor. NW SE SE, Section 30-5s-6, made 57 bbls. in lime 651-54 feet. Max Westheimer's No. 4 Davis-Sullivan, SE cor. SW SE NW, Section 30-5s-6, is a 52-bbl. well in sand topped at 597 feet and drilled to 672 feet.

Muskogee County

B. Goodman and others' No. 7 J. Harrison, NE cor. SW SE SE, Section 17-15-16, is an old well drilling deeper at 1,346 feet. C. F. Finefield has a machine on the location for No. 1 M. Sango, NE cor. NW NW, Section 9-15-18. E. A. Hollis and others' No. 1 P. Lowe, SE cor. NE SW, Section 17-15-18, is drilling at 300 feet. C. D. Bradley's No. 1 E. Sango, NE cor. SE, Section 12-15-17, is dry and abandoned at 1,360 feet. Ash Brothers' No. 1 Spaulding, NE cor. NW SE, Section 8-15-18, has been completed for 1,521,600 feet of gas in sand 739-60 feet. C. F. Finefield's No. 1 P. Rentie, SE cor. NE NW, Section 9-15-18, is a dry hole at 965 feet. Decius & Garrett's No. 1 M. Kernal, NE cor. NW NW, Section 32-14-16, has been completed for 15 bbls. in sand 1,802-14 feet.

Noble County

Magnolia Petroleum Co. made location for No. 2 Weeder, SW cor. NW NE, Section 22-21-2w. Sunray Oil Co.'s No. 1-A Waltermire, C SE NW, Section 33-21-1w, has been completed for 2,000,000 feet of gas in sand 840-57 feet.

Okfuskee County

The Prairie Oil & Gas Co. made location for No. 3 Wind, NW cor. SE, Section 36-11-9. Flynn & Morgan's No. 1 Burton, NE cor. SW SE, Section 14-13-9, has been abandoned at 3,851 feet. Andrew Erwin and Barnsdall Oil Co. and others' No. 1 Allen, SE cor. SW NE, Section 15-13-9, has been abandoned at 3,795 feet in Wilcox sand. Mitchell Oil Co.'s No. 11 Randall, NW cor. NE, Section 30-12-12, is dry and abandoned at 2,625 feet. Gilcrease Oil Co.'s No. 3 Wind, CNL SE NE, Section 35-11-9, has been completed for 2,000,000 feet of gas in sand 3,112-28 feet.

Okmulgee County

D. M. Logan's No. 2-A J. Perryman, NE cor. SE SE, Section 31-15-13, is rigging up.

Payne County

Home Gas Co.'s No. 5 Ellis, NE cor. NW SW NW, Section 1-18-5, has been abandoned at 1,335 feet.

Pontotoc County

Homaokla Oil Co. and Sunray Oil Co.'s No. 9 Richey, SE cor. SW SE, Section 1-4-7, is a rig. H. & M. Drilling Co. has the rig up for No. 1 Kilcrease, SW cor. NW NW, Section 7-4-8. W. A. Delaney and others' No. 1 Norris, SE cor. NW, Section 12-4-7, has been abandoned at 2,943 feet.

Seminole County

Ligon & Todd's No. 1 Townsite, Lot 1, Block 10, SW cor. NE NE, Section 30-8-8, is a cellar. Mid-Continent Petroleum Corp. made location for No. 2 Harjoche, SE cor. SW, Section 17-6-6, Konawa Pool. Barnsdall Oil Co. has the cellar dug for No. 5 Johnson, SW cor. SE, Section 17-6-6. Hilton Phillips made location for No. 5 Hyde, NW cor. SW NE, Section 20-6-6. Papoose Oil Co. is erecting the rig for No. 1 Davis, SE cor. NE NE, Section 12-5-7. Gypsy Oil Co. has the rig material on the ground for No. 7 Peters, NW cor. SW NE, Section 23-5-7. The Texas Company has the rig material on the location for No. 2 Dinah, SW cor. NW NE, Section 23-5-7, West Allen Pool. The Prairie Oil & Gas Co.'s No. 6 Baker, NW cor. SE NE, Section 24-9-5, Earlsboro Pool, is rigging up to drill deeper. Dixie Oil Co.'s No. 1 M. Lena, SE cor., Section 15-9-5, Earlsboro Pool, has been completed for 575 bbls. in Wilcox sand 4,259-65 feet. No. 2 Lena, SW cor. SE SE, Section 15-9-5, made 227 bbls. in Wilcox sand 4,260-63 feet. Twin State Oil Co.'s No. 2 Swartz, SE cor. NE SE, Section 10-9-7, has been abandoned at 4,415 feet. Continental Oil Co. and Sinclair Oil & Gas Co.'s No. 4 Perry, NW cor. SE SW, Section 18-9-7, has been completed for 105 bbls. in Hunton lime 4,004-90 feet after plugging back from 4,291 feet in Wilcox sand. W. B. Pine's No. 4 Bean, SE cor. NE SW, Section 13-7-6, Little River Pool, flowed 420 bbls. from sand 3,225-31 feet. Magnolia Petroleum Co.'s No. 3 Cudjo, SW cor. NE NE, Section 24-7-6, is dry and abandoned at 4,092 feet in Wilcox sand. The Prairie Oil & Gas Co.'s No. 4 I. Reed, SE cor. NW, Section 13-7-6, made 140 bbls. in Gilcrease sand 3,185-3,230 feet. Gypsy Oil Co.'s No. 9 K. Payne, SE cor. NE, Section 5-7-7, East Little River Pool, has been completed for 535 bbls. in sand 3,162-77 feet. Mid-Continent Petroleum Corp.'s No. 21 Smith, SE cor. NW NE, Section 5-7-7, flowed 240 bbls. from sand 3,336-59 feet. Barnsdall Oil Co.'s No. 1 Johnson, NE cor. SE, Section 17-6-6, Konawa Pool, has been completed for 819 bbls. in sand 2,914-57 feet. No. 2 Johnson, NW cor. NE SE, Section 17-6-6, has been completed for 496 bbls. in sand 2,920-47 feet. No. 3 Johnson, SW cor. SE SE, Section 17-6-6, made 778 bbls. from sand 2,910-80 feet. The Texas Company's No. 5 Atkinson, NE cor. SW NE, Section 17-6-6, swabbed 90 bbls. from sand 2,886-2,907 feet. No. 6 Atkinson, SE cor. SW NE, Section 17-6-6, made 65 bbls. from sand 2,871-2,947 feet. Shell Petroleum Corp.'s No. 2 Caesar, NE cor. SE SE, Section 20-6-6, has been completed for 660 bbls. in sand 2,977-3,010 feet. Barnsdall Oil Co.'s No. 3 Lusty, SE cor. SW NE, Section 13-5-7, West Allen Pool, has been completed for 185 bbls. in sand 2,719-50 feet. Gypsy Oil Co.'s No. 4 Peters, SW cor. NE NE, Section 23-5-7, made 1,035 bbls. in sand 4,230-50 feet.

Stephens County

Magnolia Petroleum Co. has the rig material on the ground for No. 1 T. D. Crews, SW cor. NE NE, Section 12-1s-4w. Crane & Rankin's No. 1 Brown, NW cor. NE, Section 23-1-9w, is pumping 50 bbls. from sand 2,180-94 feet. Empire Oil & Refining Co.'s No. 3 Miller, SE cor. NE NE, Section 5-2s-8w, has been abandoned at 3,667 feet. Heydrick and others' No. 1 Pope, NE cor. NW NE, Section 29-1s-8w, is dry and abandoned at 2,756 feet. Magnolia Petroleum Co.'s No. 10 M. Green, NE cor. NW NW, Section 13-1s-4w, has been completed for 133 bbls. in sands 2,850-3,534 feet.

Tulsa County

Pure Oil Co.'s No. 2 Brightman, CNL SE NE, Section 30-19-10, is drilling at 500 feet.

Wagoner County

Bryan Petroleum Co.'s No. 1 N. Jackson, NW cor. NE NE SE, Section 33-17-16, has been completed for 2,644,880 feet of gas in sand 874-78 feet.

CANADIAN FIELDS

(Continued from Page 58)

No. 1, LSD 8, Section 3-1-16w4, a strong gas pressure is indicated.

On the Montana end, Hannah-Porter Oil Co.'s No. 1, SE Section 2-37-4w, south of Cosmos' No. 1 producer, has developed the second flowing well in the field. It blew into production at 2,536 feet and became a gusher, but was brought under control without much loss of oil. It got top of sand at 2,530 feet. Production is from the Ellis. Hannah-Porter Oil Co. is controlled by the interests backing Cosmos Petroleum Co. The test was spudded in on May 4, after completion of Cosmos' No. 1, and drilled to the sand in exactly 30 days at a cost under $20,000. Production has not yet been estimated, but it may be larger than Cosmos' No. 1. Cosmos' No. 1 Thacker, Section 2-37-4w, in May delivered 8,716.4 bbls. to Maple Leaf refinery and 426.84 bbls. to Dakota-Montana Oil Co. for fuel, a total of 9,142.98 bbls. for the month, or better than 300 bbls. a day, with total revenue of $15,085.91. The crude commands $1.65 a barrel. Cosmos' No. 2 Thacker, same section, a quarter mile west of Cosmos' No. 1, is drilling below 450 feet. Mid-Continent Oil & Refining Co.'s No. 2 Farbo, Section 2-27-4w, got a strong gas show at 2,390 feet. Monalta Oil Co.'s No. 2 Buckley, Section 1-37-4w, is pumping steadily. Ohio Oil Co.'s No. 1 Owen, Section 2-37-4w, is drilling below 250 feet; No. 2 Farbo is drilling below 750

feet. Adanac Oil Co.'s No. 1, Section 12-37-4w, is reported spudding in. Dakota-Montana Oil Co.'s No. 1, NW Section 13-37-4w, a half mile south of Cosmos' No. 1, is drilling. J. E. Taylor syndicate will drill a test offsetting Vanalta's No. 2 producer, and Genzer, Gordon & Sugarman will drill in Section 15-37-4w.

In the border area between Red Coulee and the Kevin-Sunburst, Carnegie Petroleum Co.'s No. 1, SE Section 28-36-4w, is reported resuming around 200 feet after water shutoff. In the same area Campbell-Glacier's No. 1 is drilling at 850 feet, Kootenay Oil Co.'s No. 1 is drilling below 1,000 feet and O'Neill-Michael's No. 1 is rigging.

Inland Petroleum Co.'s No. 1, diagonal offset to Cosmos' No. 1, is reported spudding in. Test is being drilled on acreage held by J. W. Elliott who also handles the drilling contract. The company has contracted for No. 2 offsetting Ohio Oil Co.'s No. 1 Owen.

On the Alberta end, Commonwealth Petroleum's No. 1, LSD 10, Section 3-1-16w4, has been abandoned below 2,750 feet. The test failed to get production in the upper horizons, and was drilled some distance into the Madison without success. A second test may be started on another portion of the Commonwealth company's Red Coulee acreage.

Dalco Oil & Gas Co.'s No. 1, LSD 4, Section 11-1-16w4, in the northern extension of the Red Coulee Field, is shut down at 2,615 feet after encountering sulphur water at 2,550 ft. It may be continued as a deep test of this end of the field. Dalco's No. 2, LSD 7, Section 19-2-17w4, is reported spudding in.

On the west fold of the structure, Ko-Top Oils' No. 1, LSD, 1 , Section 2-1-17w4, has recovered part of the tools after a difficult fishing job, and is reported to show considerable gas and traces of oil. It is down 1,650 feet. If the hole cannot be cleared the rig will be skidded and No. 2 started.

New Imperial Tests

In the Turner Valley Field, A. M. McQueen, production manager of the Imperial Oil, Ltd., after a recent visit announced a further extension of the drilling program, involving four new tests by Imperial subsidiaries, three in the South Turner Valley. Of these, Home Oil Co.'s No. 7, south of No. 5 in Section 20-19-2w5, is rigging up for a test offsetting Wellington Oils' No. 1 producer. Lowery Petroleums' No. 2 has been located south of No. 1 producer in NW, Section 17-19-2w5, and Mayland Oil Co.'s No. 4, in NE of the same section. In the south end of Central Turner Valley, Royalite Oil Co.'s No. 25 has been spotted between Royalite's No. 6 and No. 23 and north of Structure Oil & Gas' No. 1, in N half, Section 31-19-2w5. Discussing the program, Mr. McQueen stated: "Drilling of these wells is in accordance with our agreements with the companies interested. We have no intention of curtailing our operations in Turner Valley and will continue to keep our rigs as busy this year as we have in the past." He stated that one of the most striking developments has been the success that following shooting of wells in the deep lime. In every case increased wet gas flows resulted. In some cases the extent of increase was far beyond expectations. Mr. McQueen, accompanied by Dr. O. B. Hopkins, chief geologist, has returned to Toronto following a two weeks' inspection. In South Turner Valley Northwest-Associated's No. 1, LSD 6, has blown back into normal production of around 250 bbls. after freezing off. Mayland's No. 1, after a brief period of freezing, has blown back into increased production, now making 11,000,000 feet a day.

In Central Turner Valley, Dalhousie Oil Co.'s No. 7, LSD 11, Section 18-20-2w5, is rigging up diamond drill to resume in the top of the lime at 5,048 feet.

South Turner Valley

In Section 20-19-2w5, South Turner Valley, Wellington Oils' No. 1, LSD 1, with tools jammed in the hole, delivered 2,603 bbls. of crude naphtha from May 19 to May 31, indicating production average of 200 bbls. a day. Freehold Oil Corp.'s No. 2, LSD 8, is testing production at 4,422 feet, and unofficially reported making around 250 bbls. a day.

Calmont Oils' No. 2, LSD 11, has experienced decided difficulty in making a definite production test, due to persistent freezing. An ice bridge was thawed out and back pressure is being adjusted to secure steady production. The intermittent testing indicates 600 bbls. or better if freezing can be overcome. Alberta Pacific Consolidated's No. 2, LSD 5, was shot with 700 quarts of nitroglycerin at 5,790 feet, some 626 feet in the lime, and is cleaning out preparatory to testing production. Following the shot the well blew wild for some time before freezing off.

In Section 4-19-2w5, Mill City Petroleum's No. 1, LSD 14, some 555 feet in the lime at 5,065 feet, was shot with 800 quarts of nitroglycerin, developing a fair gas flow estimated at 12,000,000 feet a day, with potential crude naphtha recovery between 100 and 200 bbls. Mercury Oils' No. 2, LSD 12, is drilling 290 feet in the lime at 5,390 feet with a fair show of gas.

Central Turner Valley

In the Central Turner Valley, Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, has resumed drilling with rotary at 5,611 feet, some 156 feet in the lime. This is about 50 feet above the horizon where a strong gas flow was struck in the previous drilling.

Okalta's No. 1 has restored production to 200 bbls. by cleaning out with diamond drill.

In Section 12-20-3w5, New McDougall-Segur Oil Co.'s No. 3 is rebuilding derrick destroyed by fire. The hole is at 5,100 feet and clear of tools.

In North Turner Valley, Anaconda Oil Co.'s No. 1, LSD 16, Section 22-20-3w5, is in the top of the Dakotas at 3,500 feet. The drill passed through a fault at 2,810 feet and resumed normal logging at 3,400.

Drilling in Foothills

On the Highwood-Sinclair structure, south of Turner Valley, LSD 11, Section 7-17-2w5, is reported bailing oil and some water from the lime at 3,878 feet. It may be shot or drilled deeper, and is claimed to show a small commercial production as it stands.

Northwest-C. & E.'s No. 1, LSD 8, Section 35-18-3w5, on the north end of the same structure, is drilling in the lime at 2,722 feet.

On the Moose Dome, 25 miles west of Calgary, Moose Oils' No. 1, LSD 16, Section 29-22-6w5, has recovered lost bit and resumed drilling in the Devonian lime at 2,595 feet, with some shows of crude.

On the Pincher Creek structure, Weymarn Petroleum's No. 2 is deepening below 1,875 feet after encountering a small gas flow at 1,862. Control head has been installed to handle production.

Border Fields

In the Milk River district, Commonwealth Petroleum's No. 1, LSD 9, Section 9-3-15w4, is deepening to the Devonian-Silurian contact, around 4,500 feet, where production is thought possible. Capitol Oil & Gas Co.'s No. 1-A, LSD 16, Section 32-1-12w4, is at 3,381 feet and reported making production test.

In the Blood Reserve area near Lethbridge, Commonwealth Petroleums, Ltd., is drilling two additional sub-surface tests before locating its commercial well.

In the Skiff Field, Devenish Petroleums' No. 4, LSD 13, Section 29-5-14w4, has resumed after cementing at 743 feet. The well is reported logging higher than any previous test in the Skiff Field. Devenish's No. 3 is delivering around 40 bbls. of crude daily for fuel for drilling.

On the Montana side, Sunburst Oil & Refining Co.'s test on the Pinhorn structure, 1½ miles south of the boundary, is reported making new hole below 350 feet.

In the Lomond district, Hudson's Bay Oil & Gas Co.'s No. 2 Lomond, LSD 1, Section 26-17-18w4, is resuming at 2,315 feet. Hudson's Bay No. 1 Keho, LSD 2, Section 17-11-22w4, in the Keho Lake district, will spud in about June 20.

Northern Alberta

On the Duvernay structure, north of Edmonton, Alberta Pacific Consolidated's No. 1, LSD 5, Section 34-55-12w4, is reported drilling below 500 feet.

In the Castor area, Hudson's Bay No. 1 on Paintearth Creek is working on steel derrick.

Wainwright Field

In the Wainwright Field, east-central Alberta, Bethwain Oils' No. 2, LSD 8, Section 4-45-6w4, cored into a good-looking oil sand at 2,281 feet and after testing for 5 feet is reaming out preparatory to cementing. Onalta Oils' No. 1, LSD 8, Section 20-45-6w4, at 2,221 feet, is reported preparing to drill into production. Fabyan Petroleums' No. 1, LSD 8, Section 24-45-8w4, is in hard limestone at 2,042 feet. Oil showings around 2,008 feet and below failed to develop large commercial production, and the test is continuing to 3,000 feet, where a lime break with possible commercial production is looked for.

Ribstone Field

In the Ribstone Field, Meridian Oils' No. 2, LSD 1, Section 16-45-1w4, is reported resuming at 1,776 feet. Oxville Oil & Gas Co.'s No. 1, LSD 15, Section 10-46-2w4, is reported standing cemented at 1,945 feet. Imperial Oil's No. 2, LSD 14, Section 9-45-1w4, is resuming after cementing at 1,683 feet. London-Ribstone Syndicate's No. 2, LSD 5, Section 22-43-3w4, is coring below 2,100 feet.

Regal Deliveries

In the Turner Valley Field, deliveries to Regal Oil & Refining Co. for May totaled 11,266 bbls., compared with 9,361 bbls. for April. Increase was due to the coming in of Wellington Oils' No. 1 producer, with 2,603 bbls. from May 19 to 31, while the Spooner wells and United Oils' No. 4 showed small gains. Production was also taken from the Okalta, New McDougall-Segur, McLeod and Regent wells.

New Oil Projects

Following negotiations by J. C. Dallas, president of Calmont Oils, Ltd., a Canadian company financed in Great Britain with a capitalization of $5,000,000 will this summer undertake extensive new development in Alberta. The company, now being organized, will acquire 500,000 acres in Alberta, including 5,000 acres of Dalco Oil & Gas Co. holdings and 6,000 acres from Quaker Finance Corp. and Wales Petroleum, Ltd. Mr. Dallas is now en route to Calgary from England.

Fisher & Lowrie, geologists, of Denver, are reported sending a large party of petroleum geologists into Alberta to investigate a number of potential oil structures. The first work will be done in the Lethbridge district, but later will be extended to Central and Northern Alberta.

LA.-ARK. FIELDS

(Continued from Page 54)

Three completions in Carterville, all well within proven territory, added 125 bbls. of new production Arkansas Fuel Oil Co.'s No. 2-B Barnett, in Section 36-23-12, pumped 75 bbls. from 3,167 feet and location for No. 9 on the same lease was abandoned. H. L. Hunt's No. 9 Peyton, Section 25-23-12, came in flowing 45 bbls. from 3,222 feet, much deeper so far as footage goes than the usual Carterville well. The Texas Company's No. 2 Peyton, in Section 25-23-12, is doubtful as a producer since it pumped only 5 bbls. initial. Total depth is 3,195 feet and nearby wells did much better.

H. I. Morgan, who abandoned No. 4 Wetherbee, in Section 21-19-11, as a salt water test at 2,260 feet last week, started another Bellevue wildcat, his fifth exploration on the flanks of the Bellevue Dome, on the Kendrick land in the SW SW, Section 22-19-11, approximately half a mile east of No. 4 Wetherbee. Carried on the report for the past three years during which it has been active at long intervals drilling and testing just enough oil to inveigle the owners to make "just one more" effort. Walker and others' No. 1 Antrim, in Section 28-22-13, has been dropped as a dry hole at 3,184 feet. Plain Dealing has added another chapter to its story of fascinating shows with unhappy endings. Louisiana Gas & Fuel Corp.'s No. 1 Crystal Oil Refining Co., in Section 7-21-11, got salt water on a drill stem test at 3,561 feet and is waiting orders.

Magnolia Petroleum Co.'s No. 1 Swann, wildcat in Section 16-21-14, Caddo Parish, made a 500,000-foot gas well at 1,973 feet with rock pressure at 765 pounds. Location is 3 miles east of Pine Island production in a territory where numerous "teasers" of the same caliber have been drilled from time to time during the past 15 years. The Texas Company's No. 3 Leonard Fee, Section 29-20-15, Mooringsport district, came in flowing 55 bbls. through 8-inch casing from 2,325 feet adding another to this old area's new small but dependable producers.

Excitement attending A. C. Glassell's No. 1 Pittsfield, in Section 41-8-10, Concordia Parish, which blew in early in the week with an estimated 10,000,000 feet of gas from 1,453 feet quieted down when authentic reports of salt water and two bridges came in but that it is a gas well opening new territory can scarcely be denied. Scouts returning from the well cut the estimate to 1,000,000 feet of gas and figured that the water is coming from behind the casing. That the 8-inch will be recemented at 1,370 feet seems to support this theory and it is also certain that when plug is drilled next week there will be considerable of a gallery on hand to watch the test. Location is 50 miles from the nearest productive territory west and north in the Urania and Richland Fields. R. E. Tippett and others' wildcat in Avoyelles Parish, No. 1 Chatelain, in Section 34-1n-3e, was not quite so hopeful, testing salt water at 3,140-47 feet and now shut down at 3,258 feet.

Gas Field Completions

Two completions in Ouachita Parish and two in Richland were the result of the week's operations in the northeast Louisiana gas fields. Arkansas-Louisiana Pipe Line Co.'s No. 5 Rea & Green, Section 82-18-4, gauged 1,000,000 feet of gas at 665 pounds from 2,232 feet. Pipes & Mack's No. 1 Union Gas Products Co., in Section 7-18-5, Ouachita Parish, a semiwildcat on the southeast corner of Monroe production, made a drill stem test in the so-called second sand at 2,384 feet and got 26 fourbles of salt water in 10 minutes. Jordan Drilling Co.'s No. 6 Cole, Section 80-18-4, made only 236,000 feet of gas at 2,234 feet.

One of Richland Parish's crater wells, No. 1 Boykin, in Section 20-17-6, completed a year ago with an estimated 65,000,000 feet of gas from 2,210 feet by Northern Louisiana Natural Gas Co., has gone dead—temporarily at least—thus removing a heavy drain on the potentialities of that part of the field. The blowout came from approximately 200 feet above the pay and was caused, presumably, by gas getting into the upper sands. Much money, time and effort has been spent in unsuccessful attempts to kill the crater. Industrial Gas Co. completed No. 1 Alexander, Section 4-16-6, gauging 17,640,000 feet of gas at 575 pounds from 2,450 feet and Southern Carbon Co.'s No. 4 E. A. and F. B. Sartor, in Section 18-16-6, made 33,428,000 feet at 620 pounds from the same depth.

Webster Parish's lone wildcat, J. J. Keane's No. 1 Monzingo, in Section 27-18-8, 10 miles southeast of Minden and on the southeast flank of the Gibsland Dome, was given up as a duster after drilling to 3,008 feet without even a salt water test. There were no completions in Sarepta but three locations were made in Section 36-23-11 by S. H. Riggs, trustee, and a fourth by Wingfield and others in Section 1-22-11.

ARKANSAS

O. W. Estes abandoned No. 1 Telford, a wildcat in Section 35-17-14, Union County, Arkansas, south of Champagnolle production, when he tested salt water at 2,906 feet in 24 feet of sand which produces in Urbana at around 2,800 feet. J. W. Olvey's No. 1 G. G. Simmons, Section 15-18-13, Urbana district, was abandoned when it tested salt water at 2,270 feet after plugging back from 3,563 feet to which it was drilled after a salt water test at 3,547 feet. A prior test at 2,228-80 feet yielded five joints of mud oil and another at 2,483-2,515 feet salt water. H. L. Hunt's No. 1 Trammel, Section 28-18-12, half a mile east of Urbana gas production, may make a gas well through separator or by cementing a string of 6-inch. It tested an estimated

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The House of Courteous Service

5,000,000 feet of gas and a spray of water at 3,414 feet, cored water sand to 3,429 feet, drilled to 3,556 feet and made an estimated 10,000,000 feet of gas with salt water and was coring at 3,634 feet. Root Refineries, Inc., abandoned No. 2 Jerry, in Section 21-17-14, 2 or 3 miles southwest of Champagnolle production, as a junked hole at 2,934 feet. Arkansas Natural Gas Co.'s No. 1 Burns, Section 14-18-17, Union County, cored salt water sand from 3,230-36 feet, drilled to 3,270 feet and cored again. Marine Oil Co. cemented a string of 8¼-inch at 3,554 feet to test 4 feet of sand lens in the red beds.

East Texas state line territory was productive of an abandoned hole when H. L. Hunt moved rig off No. 1 Chapman in the Jackson Grason Survey of Marion County, which he took over from R. E. Davidson and others, to resume drililng the well began by Hussey and others on the Trammel farm in the Charles Lockhart Survey. Total depth of the abandoned test is 3,415 feet. Lee Timberlake and others started No. 1 Tidwell in the James Eskell Survey of Bowie County and are coring at 602 feet expecting to top the Nacatoch in the immediate vicinity. Shell Rock Petroleum Co.'s wildcat, west of Marshall, Harrison County, on the Dougherty farm in the W. B. Burris Survey, is drilling again, at 3,417 feet. Arkansas-Louisiana Pipe Line Co. plans to make a deep test, 4,500 feet or deeper, for the gas the Natural Gas Products Co. got in No. 8 Roquemore in the B. C. Jordan Survey at 4,645 feet, in drilling No. 2-A Brumble in the same survey which began making hole June 10.

MISSISSIPPI

Recall to Texas and Oklahoma headquarters of land men, scouts and geologists detailed in Mississippi by various companies during the past year may be significant, even in the face of two commercial gas wells in the Jackson district to which they were assigned. Several new locations appear in the field report but only two or three wells are really active.

MICHIGAN FIELDS

(Continued from Page 64)

drown out the gas and drill on to the Dundee. The well is No. 1 Cole, NW NE SW, Section 19-15n-3w, Denver Township, Isabella County, and is near the Marthey well.

Mount Pleasant Field

Operators in the Mount Pleasant Field experienced one of their busiest and most successful weeks in a long time, adding more than 1,000 bbls. of new initial production in five new producers, making from 40 to as high as 610 bbls. daily.

Dixie Oil Co.'s No. 1 N. Davis, NW NE SW, Section 2-14n-3w, Chippewa Township, Isabella County, was the largest new completion in the proven field when it flowed 610 bbls. the first 24 hours. Dundee limestone was topped at 3,526 feet, pay at 3,542 feet and the well was drilled to a total depth of 3,585 feet before completion. This is the largest well struck so far by the Dixie company in the Mount Pleasant Field and one of the largest recently brought in here.

Sias Oil Development Co.'s No. 3 James Brown, NE NE NE, Section 11-14n-3w, also Chippewa Township, made 200 bbls. initial daily flow in Dundee pay sands struck at 3,558 to 3,585 feet. Dundee limestone was topped at 3,526 feet.

The Sias company's No. 2 Keeler-Brown, NE NW, Section 11-14n-3w, also Chippewa Township, topped the Dundee formation at 3,526 feet, the pay sands at 3,571 feet and at a total depth of 3,591 feet was a 190-bbl. initial oil producer. The same company's No. 3 Keeler-Brown, NW NE NW, Section 11-14n-3w, made 85 bbls. initial. Dundee limestone was topped at 3,531 feet, pay sands at 3,583 feet and the bottom of the hole also is 3,591 feet.

The fifth and smallest new producer in the field is the Chippewa Oil & Gas Co.'s No. 10 Joslin, SW SW, Section 12-14n-3w, Chippewa Township, Isabella County. It also was the smallest producer ever brought in by this company which struck the first and one of the few 1,000-bbl. wells on the same Joslin lease and opened development in the Chippewa or west half of the field. No. 10 Joslin made 40 bbls. initial daily production in Dundee pay sands at 3,575-95 feet. Dundee was topped at 3,544 feet.

New Locations

Five permits for new locations were issued this week in or near the Mount Pleasant Field. Two are for the Pure Oil Co., one for the Dixie Oil Co. and two for the Mellon-Pollock Oil Co. on leases near their recent successful well in Vernon Township, Isabella County. Drilling operations already have been started on most of these wells.

The locations are: Pure Oil Co.'s No. 1 Holmes and others, SE SW NW, Section 8-14n-2w, Greendale Township, Midland County; Pure Oil Co.'s No. 1 Emett Scott, SW SE NW, Section 8-14n-3w, also Greendale Township; Dixie Oil Co.'s No. 1 DeStoop, SW SE NE, Section 2-14n-3w, Chippewa Township, Isabella County; Mellon-Pollock Oil Co.'s No. 1 Crowley, NE NE, Section 27-16n-4w, Vernon Township, Isabella County; and the Mellon-Pollock Oil Co.'s No. 1 House, SW NW, Section 26-16n-4w, also Vernon Township.

Mount Pleasant Vs. Muskegon

As a result of steady but more careful development the Mount Pleasant oil field now has about half as many producing wells as the earlier developed Muskegon Field. More than 140 wells have been drilled in the Mount Pleasant proven area compared with more than 300 producers in the older Muskegon Field. Production of the central Michigan field at 7,000 bbls. a day is about twice that of the Muskegon Field at 3,500 bbls. a day, however.

At present more than 30 wells are drilling in the Mount Pleasant Field, while less than a dozen rigs are busy at Muskegon. About 40 wildcat wells are under way in counties and townships near the Mount Pleasant Field, while a considerably lesser number are being drilled in western Michigan in any direction from the proven Muskegon Field.

To Test Upper Peninsula

Representatives of several large lumbering companies owning more than 300,000 acres in the eastern part of the upper peninsula of Michigan have united to sponsor a survey to determine whether the lands will produce oil or natural gas in paying quantities. The Superior Development Co. has been organized to make the survey this summer. The investigation will be carried on in an area between Escanaba and Drummond Island taking about half the width of the peninsula along the Michigan shore. The Trenton rock strata, in which oil frequently is found, is exposed at various points in this section. The survey will be conducted under the direction of state geologists.

Officers of the Superior Development Co. are: President, G. P. McCallum, Detroit, president of the Mackinac & Marquette Land Co.; secretary-treasurer, G. Harold Earle, of Hermansville; and directors, J. F. Downey, Escanaba; W. A. Dawley, Nahma; G. J. Nicholson, Manistique; and J. M. Bush, Negaunee.

To Drill Near Bay City

The Eureka Oil Corp. is planning to start drilling activity north of Bay City in the near future. Frank L. Barnard, of Ann Arbor, is president.

ROCKY MOUNTAIN AREA

(Continued from Page 58)

18-38, is drilling at 2,750 feet in anhydrite. The 9⅝-inch was cemented at this depth. Same company's No. 4 Bowers, SE cor., Section 30, is drilling at 1,690 feet in anhydrite. Top of salt was at 1,605 feet. Same company's No. 6 Bowers, NE cor. SE, Section 30, close to the big No. 1 Bowers, is drilling at 460 feet in the red beds. Its No. 5 Bowers, NW NE SE, Section 30, is drilling at 1,411 feet in the red beds.

Continental Oil Co.'s No. 1-A State, SE NW SE, Section 29-18-38, is still a location, and Tidal Oil Co.'s No. 1 Grimes, SW NE SE, Section 29, drilling at 3,270 feet in lime and anhydrite, had oil shows at 3,161-72 and 3,223-28 feet. California Co.'s No. 1 Grimes, NW SE SE, Section 29, is bottomed at 3,735 feet where 9⅝-inch casing was set. Humble's No. 7 Bowers, SW cor. NW, Section 29, is drilling at 800 feet in the red beds, and its No. 3 Bowers, SW cor., Section 29, at 2,369 feet in anhydrite. It topped the salt at 1,589 feet and elevation is 3,644 feet.

Shell Petroleum Corp.'s No. 1 McKinley, SW cor., Section 19-18-38, is coring at 3,911 feet. Fisher & Lowrie's No. 1 State, NE cor. NW, Section 11-18-36, 9 miles west of Hobbs Pool, is shut down at 5,200 feet with hole full of oil. Landreth Production Co.'s No. 1 State, SW cor. SE, Section 7-18-38, is drilling at 2,110 feet in salt at potash. Top of salt was at 1,835 feet. This well, 2 miles north of No. 1 Bowers, appears to be running more than 200 feet higher, based on top of salt. It is the most northerly of the drilling wells.

Eunice Area—Lea County

Ohio Oil Co.'s No. 1 State-McDonald, SW NW SW, Section 15-22-36, is drilling at 1,060 feet in the red beds, and Tidal Oil Co.'s No. 1 Coleman, SW cor. NE, Section 17-21-36, cemented 12½-inch at 255 feet.

Cooper Area—Lea County

Cranfill & Reynolds' No. 1-C State, SW SE SW, Section 16-23-36, was completed at 3,750 feet after plugging back from 3,953 feet and is averaging 210 bbls. daily, of which 32 per cent is water, after being shot with 30 quarts at 3,604-3,708 feet. The pay was at 3,605-3,743 feet, elevation 3,447 feet, top of salt 1,520 feet, base at 3,120 feet and top of lime at 3,145 feet. Texas Pacific Coal & Oil Co.'s No. 4 State, NW NE NW, Section 21-23-36, is drilling at 3,790 feet in lime and averaging 40 bbls. per day, and its No. 5 State, C E half NE, Section 20-23-36, is rigging up.

Jal Area—Lea County

Midwest Refining Co.'s No. 19 Farnsworth, SW SW, Section 14-26-37, cemented 15½-inch at 558 feet, and its No. 34 Farnsworth, SE SE, Section 13-26-36, is drilling at 1,475 feet in salt. The 12½-inch was cemented at 1,370 feet and top of salt was at 1,380 feet, elevation 2,950 feet.

Maljamar Area—Lea County

Maljamar Oil & Gas Co.'s No. 3 Baish, SE NE NW, Section 21-17-32, is drilling at 3,527 feet in brown lime. It had 4,000,000 feet of gas at 3,155 feet. It appears to be logging higher than other wells in the immediate vicinity.

Tatum Area—Lea County

A. D. Morton and others' No. 1 State, C NW, Section 32-11-38, drilling at 5,255 feet, had an oil show at 5,120 feet. Salt water began showing at 5,180 feet and at 5,180-85 feet stood 2,500 feet in the hole.

Eddy County

Pecos Valley Gas Co.'s No. 6 Vandergriff, SW NE, Section 5-17-28, is drilling at 1,250 feet in shale. Pueblo Oil Co.'s No. 5 Russell, SW NW, Section 18-17-31, drilling at 3,410 feet in lime, had another show of gas at 3,373-75 feet and a show of oil at 3,400-05 feet. Lockhart & Co.'s No. 2-X Parke, NW NW, Section 23-17-30, is drilling at 446 feet in salt. Top of salt was at 430 feet.

San Juan County

Southern Union Gas Co.'s No. 2 New Mexican Eagle, SW NW, Section 14-28-11, Kutz Canon, is drilling at 1,200 feet, and Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, at 1,450 feet.

UTAH

The first well drilled in Utah exclusively in search of carbon dioxide gas reached the objective horizon June 3 and behaved as might be expected. The well is Carbon Dioxide & Chemical Co.'s No. 1, NE SE SW, Section 12-15s-11e, on the Farnham Dome in Carbon County. It was drilled for the purpose of opening up a supply of gas to be used in making dry ice. The well reached the objective at 3,150 feet and came in for approximately 1,500,000 feet a day, though it has not yet drilled into the main pay. The expansion of the gas caused the water in the hole used for drilling to freeze and aside from the first display did not yield any dramatic results. The well is temporarily shut down while a method of drilling deeper in a dry hole is being de-

vised. It is an offset to a well drilled in 1924 by the Utah Oil Refining Co. in an exploration for oil. Officials who were present expressed themselves satisfied with results as the quantity of gas already found is equal to the output of a plant manufacturing the product from coke that would represent an investment of $500,000. The company is affiliated with the Fulton Petroleum Co., which has production in Montana and is drilling in Colorado.

Utah Oil Refining Co.'s No. 31 Pary, SW SE, Section 14-39-1w, Kane County, is bottomed in sand at 3,998 feet and lowering 8⅝-inch casing. Diamond Oil Co.'s No. 4, Section 16-8s-5e, Utah County, is drilling at 2,000 feet in dark brown shale.

COLORADO

Moffat County

A discovery of considerable importance was made in Midwest Refining Co.'s No. 24 Hannewalt, NE SE SE, Section 4-6n-92, on the Bell Rock structure, in Moffat County, northwestern Colorado, 8 miles southwest of Craig and 10 miles northwest of the Moffat oil field. At a total depth of 2,850 feet, 20 feet in the sand, the well came in as a gasser estimated at 20,000,000 to 30,000,000 feet of dry gas. A control head is being installed and meantime no gauge has been taken. The sand is in the Mesa Verde formation of Upper Cretaceous age. The 10¾-inch casing was set on top of the sand. The Morapas sandstone in the Mancos shale, which forms the rimrock around the Moffat and Iles Domes, was the objective in the Bell Rock wildcat and was expected at around 4,000 feet. The Dakota, the first producing horizon at Moffat, was logged at approximately 6,500 feet. The Bell Rock Dome is on the Williams Fork anticline, which trends in a northwest-southeast direction and is the same fold upon which the Moffat Dome is located. Sears, in Bulletin 751-G of the United States Geological Survey, gives to the Iles formation, the lower part of the Mesa Verde group, based on measurements at outcrops, a thickness of 1,350 feet including 746 feet of sandstone, 112 feet of shale, 16 feet of coal and 476 feet of concealed beds. The well is supposed to be bottomed at a considerable depth in the Mesa Verde and probably within 200 feet of the objective Morapas sandstone where it is hoped to find oil. Attempts will be made to kill the gas and go on down. It is understood the company has no definite plans for the use of the gas should it be completed as a gas well. Denver interests not identified with the Midwest have a franchise to supply Craig with gas and the new well affords a nearby supply. The Western Public Service Co.'s gas system into Utah has a line about 50 miles to the northwest. Saving the gas for repressuring the Iles wells is a possibility. The Mesa Verde formation lies below the gas beds on the Hiawatha Dome, 50 miles to the northwest and about 1,000 feet below the bottom of the test recently drilled by the Texas Production Co. on the White River Dome in Rio Blanco County.

Texas Production Co. has a temporary completion in its No. 6 Knowlton, SE cor. Lot 8, Section 10-4n-91, on the Moffat Dome. This was an old well in the Dakota drilled deeper. Total depth is 4,542 feet and it probably is bottomed in the Sundance, though the horizon is not definitely identified. It flowed 155 bbls. natural in 21 hours and is on production. It may be drilled deeper later. Same company's No. 12 Knowlton, SW SE, Section 33-5n-91, is rigging up rotary and is about ready to commence spudding. Midwest Refining Co.'s No. 19-SD Parkinson, SW NE, Section 22-4n-92, Iles Dome, is bottomed at 3,457 feet and cemented 6⅝-inch on top of the second Morrison sand. It has 800 feet of oil in the hole. It is an offset on the east to a producer. Keoughan-Myers and others' No. 1 State, SW SW, Section 16-4n-101, Midland Ridge Dome, a Pennsylvanian test, is drilling below 500 feet. Texas Production Co.'s No. 1 Berlin, SW NE, Section 19-12n-100, Bartram Dome, is still bottomed at 2,573 feet and getting the hole in shape for a test of gas found in 2,565-73 feet.

Baca County

An important wildcat is being started in the extreme southeastern corner of Colorado in A. R. Jones Oil & Operating Co.'s No. 1 Boise, Tract 50-34-42, or approximately NW NE, Section 22-34-42. It commenced spudding May 26 in a 28-inch hole with cable tools for a deep test. The company has a large acreage blocked up upon which its geologists have been working for some time and it is reported the test may be drilled to 8,000 feet. This is the largest hole at the surface in Colorado of which any records are available. Joe Miller, of the Joe Miller Drilling Co., went to Russia several years ago to help the Soviet government get some of its wells into condition. Over there, Miller says, holes are started in 42-inch casing of the stove pipe variety and 12 sands are cut within 2,000 feet.

Bent County

Continental Oil Co.'s No. 1 Pipe Springs, NE SE, Section 27-27-49, is still fishing for tools at a total depth of 6,075 feet at which depth it has 2,500 feet of salt water in the hole.

Douglas County

Perry Park Oil Co.'s No. 1 Cannon, NE SE SW, Section 11-9s-68, Perry Park structure, is rigged and ready to spud in a 2,000-foot test of the Pierre shale down to the Niobrara. W. L. Christiana, formerly chief geologist of the Continental Oil Co., is in charge of the operation.

Morgan County

Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan anticline, is drilling at 1,574 feet. The 20-inch was set at 57 feet; the 15½-inch at 955 feet, and the 12½-inch at 1,550 feet.

Washington County

Middlemist Oil Co.'s No. 1 Middlemist, SW SE, Section 14-4s-56, is preparing to resume at 1,030 feet on June 15.

Yuma County

Phillips Petroleum Co.'s No. 1 Andrews, NW NW, Section 3-2s-42, Rosekrantz Dome, was unable to recover the parted 6⅝-inch string and ran 5-inch and is drilling at 5,070 feet.

Weld County

Platte Valley Petroleum Co.'s No. 1 Patterson, SW SW, Section 24-6n-61, Greasewood Dome, is shut down at 6,229 feet for underreamer lug. It was at this depth the hole was reported showing a little seepage oil from just above the Nio-Benton sand and it was decided to underream and lower 4¾-inch before going deeper.

Larimer County

A Pennsylvanian test on the east front of the mountain range is to be drilled by Continental Oil Co. in its No. 1 Hoffman, SW NE, Section 23-4n-70. Contract has been let to the Warner-Mosher Drilling Co. and road is being built to location. The surface is the Muddy of the Dakota series and the Sundance is expected at 500 to 600 feet and the Pennsylvanian sand at around 1,250 feet. The structure is known as the Deininger Dome. The location is about 2 miles north of a well drilled by Art Deininger in the NE cor., Section 35-4n-70, which is standing at 354 feet in the middle Dakota sandstone. It had some gas at 115 feet, below the Muddy, and water in the Dakota. E. S. Agnew and others' No. 1 Maxwell, NE, Section 25-8n-70, on the Bellvue Fold, northwest of Fort Collins, is ready to spud. Stolns & Son have the contract. Warner-Mosher Drilling Co.'s No. 1 Read, SW NW, Section 28-4n-69, Berthoud Dome, is bottomed at 3,120 feet and will set casing and let the hole stand while it uses the rig to drill Continental's test on the Deininger Dome. Five Square Oil & Gas Co.'s No. 1-A State, SW cor., Section 16-4n-69, and No. 1 Fagin, SE NE, Section 17-4n-69, Berthoud Dome, have been connected with the Colorado-Wyoming Pipe Line Co.'s gas line and that company will buy the gas. These wells were drilled before Standard Oil Co. of Colorado took over part of this operation. The last named company's No. 1 Hertha, NW cor., Section 21-4n-69, which has been making some oil from the Muddy for some time, is standing. The company is making plans

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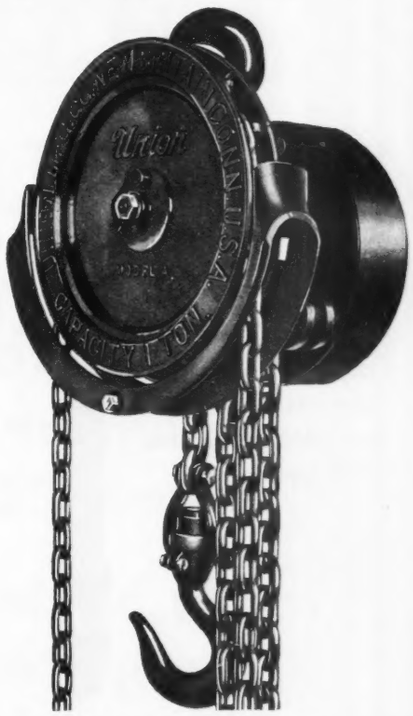

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for drilling three or four more wells on the Berthoud Dome, all of which are to be drilled to the sands for oil. Continental Oil Co.'s No. 3 Scott, SW SE, Section 6-9-68, Wellington Dome, which was completed in the Muddy sand at 4,345 feet in 1928, is building derrick to drill deeper.

Jackson County

Producers & Refiners Corp.'s No. 1 Hendershot, SE NE, Section 2-6n-81, Pole Mountain, is bottomed at 4,000 feet and preparing to core. An unconfirmed report is that at this depth the hole had a good show of oil and the well was shut down awaiting arrival of officials from Independence. The horizon probably is the Nio-Benton, or Wall Creek sand of the Frontier. The objective is the Dakota which is 300 feet thick at the outcrops to the west. Midwest Refining Co.'s No. 21-X Rich, SW NW, Section 9-6n-80, Buffalo Creek, is drilling in gray shale at 3,712 feet. The 8⅝-inch is at 3,689 feet and the hole is full of water.

Rio Blanco County

Magnolia Petroleum Co.'s No. 1-A Fordham, NW SW, Section 9-2s-96, Piceance Creek, is drilling at 4,310 feet in shale which appears to be getting lighter. It is believed to be within a short distance of the objective sand. Gas encountered in upper formations is being used for fuel.

Garfield County

Fulton Petroleum Co.'s No. 1, NE NE, Section 8-8s-102, Garmesa Dome, is rigged and waiting for crew from Utah.

Archuleta County

Crew has gone in to begin drilling on the Outwest Investment Co.'s No. 1 Fitzhugh, NW SW, Section 34-33n-1e, Chromo Dome.

WYOMING

Sweetwater County

Another important discovery in the Tensleep formation of Pennsylvanian age in southwestern Wyoming has been made in Prairie Oil & Gas Co.'s No. 75-A, SW NW, Section 11-26-90, on the Little Lost Soldier Dome in the northeastern corner of Sweetwater County. Top of the Tensleep was reported reached at 3,942 feet and the hole drilled to 3,962 feet. At this depth it made 1,250 bbls. in 24 hours and was shut in. The oil was reported to have tested 34.5 gravity and to be of a mixed base with paraffin predominating. A significant feature of the grade of oil is that it is much better than found in the Frontier at a comparatively shallow depth which ranges around 31.5°. The oil is also far superior to the grade found in the Tensleep in the northern part of the State where it is black and has an asphalt base. The Little Lost Soldier Pool produced first from the Wall Creek series and deeper drilling developed production in the Dakota and finally in the Sundance. Last December the deep test was started. This is the third discovery of oil in the Tensleep in the southern part of Wyoming, the others being on the Ferris and Mahoney Domes, east of Little Lost Soldier and in Carbon County. In all instances, the grade of oil is much better than that found in the deep test in Salt Creek and other fields farther northwest. The Tensleep evidently has attractive possibilities over a wide area as a result of these discoveries and drilling to that horizon in the Baxter Basin gas fields farther west is among early probabilities.

Park County

Oneida Oil Co.'s No. 1 Beck, SW cor., Section 28-52-100, the most northerly well in the Oregon Basin Field, gives evidence of coming in as a good producer and extending the productive area. It topped the lime at 3,685 feet, set 6⅝-inch at 3,705 feet and drilled into the Embar at 3,710 feet. The pay was penetrated only a few inches when the hole filled and gave indications of flowing. A control head was installed and well shut in for tankage. It logs 266 feet down structure from Charles E. Orchard's No. 1 Owens, the nearest producer. While no test has been made, it looks as if it might be one of the best producers in the field. Texas Production Co.'s No. 1 Freeman, C NW SE, Section 30-51-100, is drilling at 2,628 feet. Resolute Oil Co.'s No. 1, SW NE, Section 17-57-101, Badger Basin, is drilling at 5,285 feet, and California Exploration Co.'s No. 2 Pitchfork, NW NE, Section 14-48-102, is drilling at 2,730 feet. Midwest Refining Co.'s No. 31 Rosenberg, SW cor. SE, Section 24-58-98, Frannie Dome, is drilling at 1,685 feet in pink shale, and its No. 31 Frannie Oil, SW NE, Section 25-58-98, is still held up by casing trouble at 1,990 feet. Continental Oil Co.'s No. 26 Elk No. 2, SE NE, Section 24-58-100, Elk Basin Field, is rigging up.

Weston County

The Osage district in northeastern Wyoming is one of the most active in the state. Straitiff & Curtis' No. 1 Updike, CSL SE NE, Section 14-46-64, offset on the north of the Jones well, is flowing 200 bbls. a day while being completed. Sand data on this well is not being released. It was dry at 1,637 feet and looked like it might be a failure, but upon drilling a little deeper it began flowing. The depth indicates the sands are dipping rapidly to the north and northwest. Osage Trust Co.'s No. 3, NW cor. SW, Section 13-46-64, an offset on the east to the Jones gusher, is flowing 120 bbls. a day from sand topped at 1,531 feet. James McCullough's No. 1 Logan McCullough, NW NE NE, Section 23-46-64, found sand at 1,699-1,716 feet. It flowed 100 bbls. a day from the first 4 feet of sand and just before it was shut in it was going at the rate of 200 bbls. a day. It will be opened for production as soon as tankage is up. This well showed the best sand body of any well so far drilled on the west side of the Jones Pool. Rhinehart and others' No. 3, NW SW, Section 7-46-63, was completed as an 8-bbl. pumper, and Walker and others' No. 2, NW NW, Section 7-46-63, pumped 50 bbls. first 24 hours. Dornacher and others' No. 2, SE SE, Section 12-46-64, is drilling at 300 feet, and M. K. Mouser's No. 1 Bock, NW cor., Section 2-46-64, is spudding at 100 feet. Osage-Wyoming Oil Co.'s No. 1 Witzell, SE NE NW, Section 30-46-64, is drilling at 500 feet, and Kelso Oil Co.'s No. 1 State, SE NE, Section 11-46-64, is drilling at 1,200 feet. Wesco Oil Co.'s No. 5 Fee, SE NE SE, Section 13-46-64, had a small show of oil in top of sand at 1,470-84 feet. It will be shot and may make a profitable well. Osage Trust Co.'s No. 4, SW cor. NW, Section 13-46-64, is drilling at 1,200 feet, and its No. 5, NW cor., Section 13-46-64, is fishing for bailer. Same company's No. 6, NW SW NW, Section 13-46-64, is drilling at 500 feet, and its No. 7, NW SW NW, Section 13, is rigging up. Hugh Updike & Sons' No. 1 Updike, NE cor., Section 14-46-64, found the sand dry at 1,532-60 feet and will drill deeper. Westanmac Oil Co.'s No. 1 Toyne, SE NW NE, Section 3-46-64, is a location. This is a new company entering this territory. It is backed by Washington people and Ed West, who is well known in Montana and Oklahoma fields, is with them. Lambie Oil Co., experienced West Virginia operator, is rigging up for its first well in Wyoming in its No. 1 Bock, SW cor. NE, Section 14-46-64.

Niobrara County

Argo Oil Co.'s No. 7 Wehopeso, SW NW, Section 19-39-60, the deep test in the Mule Creek Field, is drilling at 2,735 feet in yellow sand with water standing within 270 feet of the top. It is still in the Tensleep and may go on down to the Amsden and Madison. The Argo and Ohio Oil Co. wells in Mule Creek have again been shut in after filling all available storage. The field has been producing since the first of May after the winter shutdown. Lack of a market is given as the reason for shutting in the wells again. Formerly the Illinois Pipe Line Co. purchased the oil and shipped it to Canada for refining. Ohio Oil Co.'s No. 1 Converse Sheep, SW SE, Section 32-36-65, Lance Creek, lost its rig by fire the past week.

Natrona County

Midwest Refining Co.'s No. 29-DT, NW, Section 35-40-79, the Salt Creek deep test, is bottomed at 4,495 feet and straightreaming 6⅝-inch to shut off a little water in top of the Madison lime. Same company's No. 11 Middy, NE NE,

Section 23-35-79, Midway Dome, is drilling at 3,301 feet in hard gray shale. The Shannon sand at 2,450 feet was reported dry. Mosher Oils, Inc.'s No. 9, NE, Section 33-40-79, Salt Creek, showed for about 15 bbls. daily at 1,260 feet, but will be continued to the objective expected at 2,100 feet. Chicago Oil Co.'s No. 3, SW, Section 1-33-83, Poison Spider, is drilling at 2,882 feet in hard lime.

Carbon County

Producers & Refiners Corp.'s No. 2, SE NW, Section 34-26-88, Mahoney Dome, discovery well in the Tensleep on that structure, is pumping 70 bbls. a day of 35 gravity oil from the Tensleep at a total depth of 4,698 feet after plugging back. It is probable three more wells to the Tensleep will be drilled on the structure. Midwest Refining Co.'s No. 31 Eades, SW SE, Section 1-18-78, Dutton Creek, is drilling at 4,165 feet with 6⅝-inch at 4,122 feet. Producers & Refiners' No. 8, NE NW, Section 7-26-89, Wertz Dome, to be deepened from the gas horizons as a test of the Tensleep, is still fishing for tools at 4,150 feet. Same company's No. 1, Section 11-24-88, O'Brien Springs, is drilling at 1,614 feet in hard sand.

Fremont County

Producers & Refiners' No. 10, Section 14-32-95, Sand Draw, a rotary test to sands below the big gas in the Frontier, is drilling at 2,745 feet in hard sand, one of the sands of the Wall Creek series. Same company's No. 2 Muskrat, SE NW, Section 33-34-92, is drilling at 1,850 feet in shale. Kinney-Coastal Oil Co.'s No. 1 Dykeman, SE SW, Section 22-3n-1w, Pilot Butte, is rigging electric rotary. Total depth is 3,735 feet. Texas Production Co.'s No. 1 State, SW SW, Section 36-34-95, Alkali Butte, is drilling at 3,600 feet and is close to where discovery well found the pay.

Sublet County

California Petroleum Co.'s No. 5-E, Section 27-27-113, La Barge, is drilling at 515 feet.

Lincoln County

Midwest Refining Co.'s No. 1 Larcher, SE SE, Section 25-37-117, Little Grays River, is drilling at 1,926 feet in hard brown sand, probably the Nuggett.

IDAHO

Moneida Oil Co.'s No. 1 Rose, NE, Section 32-14-36, Clark County, is drilling at 1,155 feet in the Woodside shale of the lower Triassic. Grand Teton Oil Co.'s No. 1 Blevins, SW SE, Section 33-5n-44, Teton County, is drilling at 2,545 feet in the Aspen formation and preparing to make a water shutoff, and its No. 1 Bevan, Section 28-5n-44, is fishing for tools.

MONTANA

The Border Field had two new wells to report the past few days, the Race Radigan No. 1, an offset to Cosmos No. 1, is in the pay and estimated 300 bbls. and is not making any water. This completion is on the Montana side. The Hannah Porter No. 1 reached the sand the past week and will make a good producer about the same size as the Race Radigan well. The pay was found at 2,530 feet.

The Alberta Pacific's new producer is being placed on pump, and the Commonwealth's well on the Canadian side looks like a dry hole and will be abandoned. The Southern Alberta Exploration's No. 1 has a 2,000,000-foot gas flow on top of the Vanalta sand and is drilling ahead. It looks as though it will make a producer when the sand is reached.

The area north of Cut Bank has suddenly become an active oil center. The gas mains in the town of Cut Bank are all laid and ready for testing, the pipe line is being laid from the Drumheiler well about 12 miles north and four other wells are drilling in that area. The Producers & Refiners Corp. has announced taking over of leases in the vicinity of the Drumheiler well and will start a wildcat at once to test the lease. This activity is based upon the gas well drilled by the Drumheiler interests about two years ago and which is now being piped to Cut Bank to furnish that point with gas.

In the northeast part of Montana, Valley County, a strike is reported that is taking several scouts to that point. The well being drilled for gas, about 6 miles east of the town of Thoeny, found a showing of oil in the top of the Bear-

(Continued on Page 154)

KANSAS FIELDS

(Continued from Page 52)

3,641-54 feet. Mid-West Exploration Co.'s No. 13 Austin, SE cor. NE NE, Section 36-12-16w, made 40 bbls. in sand 3,120-25 feet.

Cowley County

Lewis and Empire Oil & Refining Co. made location for No. 1-B Hill, SE cor. SW NW, Section 20-31-6.

Elk County

Producers & Refiners Corp.'s No. 1 Williams, SW cor. NW, Section 36-30-9, is rigging up to deepen from 2,376 feet.

Morton County

McNabb and others' rig is up for No. 1 Rickarts, C SE, Section 5-35-39w.

Greenwood County

Simmons and others' No. 1 Frankhouser, SW cor., Section 21-22-12, is dry and abandoned at 1,946 feet. Bisagno and others' No. 4 Ralston, CNL SE NE, Section 9-25-13, has been abandoned at 1,620 feet.

McPherson County

Graham Brothers' No. 1 Rolander, SE cor. SW SW, Section 30-18-2w, is rigging up to deepen from 1,460 feet. Gypsy Oil Co. has the rig up for No. 1 J. Stucky, SW cor. SE, Section 33-20-3w. No. 2 E. Stucky, NE cor. SW SE, Section 33-20-3w, is also a rig. Sinclair Oil & Gas Co. is erecting the rig for No. 3 McCurdy, NW cor. SE SE, Section 33-20-3w. Dixie Oil Co. and Amerada Petroleum Corp. made location for No. 1 Krehbiel, NE cor. NW, Section 4-21-3w, Voshell Pool. Sinclair Oil & Gas Co. is building the rig for No. 11 Morehouse, NW cor. NE, Section 4-21-3w. Gypsy Oil Co.'s No. 1 E. Stucky, SE cor. SW SE, Section 33-20-3w, has been completed for 1,600 bbls. in Wilcox sand 3,265-95 feet. Barnsdall Oil Co.'s No. 4 Krehbiel, NE cor. NW SE, Section 4-21-3w, made 745 bbls. in Silicious lime 3,407-11 feet.

Reno County

E. L. Study and others' No. 1 Haury, NE cor. SW, Section 1-23-4w, is a rig going up.

Rice County

G. E. Burgher's No. 1 Fair, NE cor. SE SE, Section 14-21-10w, is dry and abandoned at 4,001 feet.

Rooks County

Stearns & Streeter and others' No. 1 Conger, SE cor. NW NE, Section 16-10-16w, is a rig.

Russell County

Empire Oil & Refining Co. is building the rig for No. 1 Herbel, NW cor. NE SW, Section 26-14-14w. Stearns & Streeter's No. 1 Mitchell, SE cor., Section 6-15-14w, is a rig.

Sedgwick County

E. B. Shawver made location for No. 1 Robbins, SE cor. NW SW, Section 21-28-1e.

Stafford County

Gibson and others' No. 1 Mueller, C SW, Section 11-23-14w, is dry and abandoned at 4,500 feet.

Stevens County

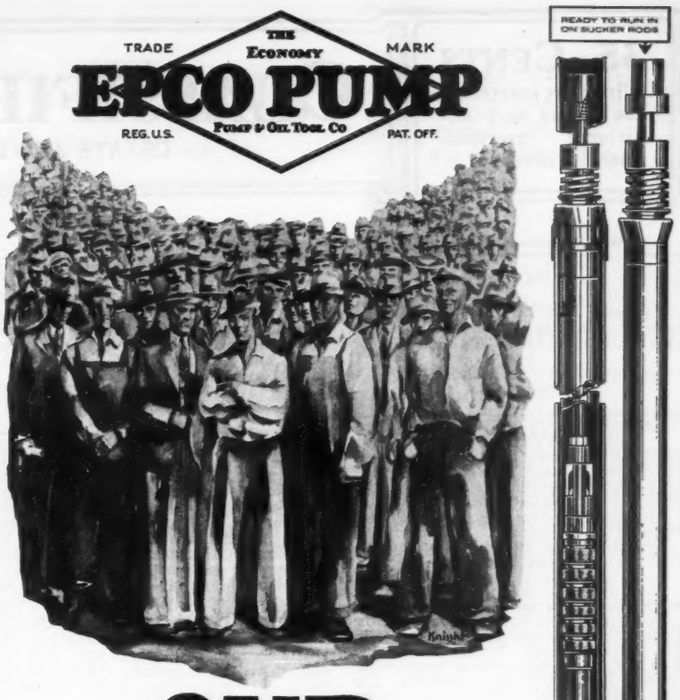
Barrington and others staked location for No. 1 Kramers, C NW, Section 2-35-39w. Trees Oil Co. is building the rig for No. 1 Brecherson, C NW, Section 3-35-38w. The rig is also being built for No. 1 Mitchell, C SE, Section 3-35-38w. No. 1 Myers, C NW, Section 10-35-38w, is a rig under construction. Argus Gas Co.'s No. 1 Crawford, C SE, Section 19-32-37w, has been completed for 13,356,000 feet of gas in sand 2,660-2,835 feet. No. 1 Pride, C SW, Section 25-33-39w, made 5,564,000 feet of gas in sand 2,626-2,890 feet. Trees Oil Co.'s No. 1 Lowery, C SE, Section 4-35-38w, has been completed for 7,250,000 feet of gas in sand 2,610-2,782 feet.

Sumner County

Lario Oil Co. and others' No. 13 Weinrich, CWL SE NW, Section 23-32-2, is drilling at 1,325 feet.

Woodson County

Henderson and others' No. 1 Wilhite, SW cor. NE SW, Section 14-26-13, is spudding.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273 ACRES: Freestone County, Texas, 240 acres Brewster County, Texas, oil and gas permit. Want someone to develop NOW. 2025 Alamo Nat'l Bldg., San Antonio, Texas.

BUSINESS OPPORTUNITIES

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LEASE. We have 400 acres land for oil leasing. If drilling is done at once will give the lease free. Land well located on Cumberland River in Monroe County, Kentucky, on Merridith Creek Dome. Ed and Martin Bailey, Tompkinsville, Ky.

LEASES—PRODUCTION

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26,000 acres leased and abstracted between Cutbank and Pondera Field. For further information write William B. Hoerr, Cutbank, Mont.

ROYALTIES—PRODUCTION

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More Activity in Chicago Gasoline

But Greater in Contract Than Spot Market. Some Indications That Jobbers May Be Beginning to Need Supplies

By J. B. Waldo

CHICAGO, June 16.—There was more activity in the gasoline market here today than a week ago. The improvement was not great and was felt to a greater extent in the contract than the spot market but even the latter was more active than last Monday and there were some indications that the jobbers were beginning to need gasoline. Shipping instructions on contracts came forward in good shape and were about all the business that the major refiners were doing as their spot price of 7 cents Group 3 for U. S. Motor gasoline was too much above the market to permit of their sales being more than nominal.

The spot sellers were doing a little more business than last week and having a good many inquiries regarding prices and conditions which might indicate that some of the jobbers were preparing to purchase. There was also some demand for cars in transit and nothing else would do as the gasoline was needed.

Prices showed no improvement and most sellers were willing to sell at 6¼ cents although they might try for a better price. U. S. Motor gasoline was bought in Oklahoma according to reliable brokers for resale at 6 cents Group 3. The week-end was fairly favorable, cool with some showers, but generally pleasant. The schools are now beginning to close which permits of more week-end touring. The higher gravities were in light demand.

Kerosene was very much neglected. The demand for furnace oils was light, just a limited number of scattered cars. There were quite a number of inquiries for industrial fuel oils but the quantities wanted were all small, a 10-car inquiry seeming large. The Illinois Steel Co. placed an order for 12 cars of industrial oil buying at a price below 55 cents. Some 18-22 fuel oil is being offered as low as 50 cents in this market. Western bright stocks are now being quoted at 32 cents but sales have been made of Pennsylvania bright stocks within the last day or two at 30 cents Pennsylvania refinery and it is stated that at least a few orders were actually entered and accepted at 29½ cents.

Spot Market Slow

The spot market last week continued to show the same lack of demand, and pressure to sell noticeable during the preceding week. One explanation is that the number of spot buyers has decreased rather than the buying of those who still regularly order in the spot market. A large number, probably a couple of hundred dealers in this territory, have been taken from the ranks of buyers of any kind or class and are now simply the outlets of some one of the large integrated companies. The gasoline and other products which they sell, are supplied them by the refiner which is part of their organization. Of course many of these companies which have been taken over in some way or another, had contracts with some refiner but that does not prevent the jobber from buying some material in the spot market from time to time for one reason or another. It is true that a large number of the concerns which sold out have had companies formed to operate in the same locality but these are small dealers yet and their purchases do not make up for those of the concerns which have been absorbed.

The decrease in the number of spot buyers has been a distinct blow to those refiners who have little or no sales organization but have depended on the orders of the jobbers or the brokers who bought direct through the spot market. Some are now trying to secure a list of contract customers and it is presumably from these refiners the jobbers are receiving offers of contracts with margins that go as high as 6 cents below the station price in a great many cases. As a matter of fact they furnish the jobber with nothing but gasoline. They do not spend any money on advertising in his territory nor do they furnish him signs or displays of any kind. There are some jobbers and many of them have been successful who do not care for these sales helps if they can secure a better margin by not taking them. They sell as a rule under their own brand and prefer to do so to display the signs of some of the nationally advertised brands of gasoline. Many have their own motor oil brands and while they will often handle the advertised brands of motor oils they do it for the advertising and push their own oils whenever they can.

Over Pressure to Sell

There was no maintenance of gasoline prices in this market last week. The trouble is so evidently the fault of over pressure to sell to dealers who are not willing to buy that it would seem something might be done to prevent the offerings of a continuous volume of gasoline much in excess of the capacity of the dealers or the public to absorb. It is not generally believed the dealers have as a rule really drawn to a great extent on their stocks. Many have bought just about as they have sold. Some may have reduced their storage a little but the stocks in dealers' hands are still ample. Just where the jobber has bought his gasoline is a question but there is no doubt some of it has come from refineries in the Chicago district. One large refinery has quoted 6½ cents, Group 3, to regular customers it claims but several happened to be contract customers of other refiners so they could not have been so very regular. Some jobbers reported they were offered U. S. Motor gasoline at 8½ cents Chicago switching district by a close-by refinery which they did not care to name. This would figure 6⅛ cents, the group. At the close of the week, a common estimate of the price at which U. S. Motor gasoline was moving to the spot buyer was 6⅜ to 6½ cents with more sales at below the low than above the higher price. One Oklahoma refiner began the week with an offer of 6¾ cents for U. S. Motor and had decreased his price day by day to 6¼ cents . There is also a considerable volume of off-grade gasoline being offered and bought by jobbers. One of these stated he had bought U. S. Motor gasoline for 6 cents, Group 3. He admitted some of the intermediate distillations were a little off but claimed to have sold large quantities of this refiner's gasoline and that it went well with his trade. But this price is only a little higher than some of the offers received from Oklahoma where strictly U. S. Motor specification material has been offered at 6⅛ to 6¼ cents and one lot at 6 cents flat with a buying charge of $5 a car.

Looking to July

It should be remembered that the July consumption of gasoline over a term of years has been very much larger than the June consumption. Even the deliveries on contracts are increased. Over a long period of years there has always been a large reduction of gasoline stocks beginning with July and continuing usually until November. If the output of gasoline is not increased, and why any refiner should increase his runs in the face of going prices for his products is not really understandable, there should be the same decrease in supply that has taken place for several years past which is really one of the safety valves of the business. No one here expects to see a strong market at any time this season. It would be most unexpected but it should be considerably better than it has been for the past two months at least and there should be a check to the constant decline in prices.

Quantity Discounts

There is a vast amount of complaint regarding the new quantity discounts which have been made effective in this district by all of the major distributors. The new discount is 5 cents from the service station price to all buyers of 1,000 gallons or more a month. Apparently it is the intention of this discount to place the dealers handling the brands of the major companies in a position to compete with the cut price stations. It is really impossible to realize the amount of price cutting going on in this district unless a trip is taken through the various sections of the city and especially the suburbs and outskirts. Such a trip will show there are a great many new stations selling gasoline and the majority are operating as "Bulk Service Stations," or as "Trackage Service Stations." Both of these names mean the prices are being cut usually 2 cents below the normal station price but often even more. The suggestion in connection with these names is that through some saving in expense the dealer is able to sell at a lower cost and is giving the public the benefit. The new Q, D, A, so far as this city is concerned, puts the buyer of 1,000 gallons a month delivered by tank wagon right to the station, on a par with the dealer operating on a marginal contract of 5 cents under the station price. These discounts have already resulted in quite a number of contracts being sidetracked which were on the point of being signed and it is believed will prevent the renewal of some present contracts.

But even the jobbers are not consistent. In one case a jobber was complaining regarding the new discount and saying it would force him out of business, when in came the owner of a fleet of trucks operating all over the city making deliveries. The jobber went after a contract for his motor fuel and finally offered to allow him a discount of 5 cents a gallon on his monthly accounts. He afterwards figured he would be able to make about 2 cents a gallon net. Less the tax the station price is 16 cents which would make the price to the truck owner 11 cents. At the present market gasoline could be bought delivered at 8½ cents so the jobber would have a margin although a narrow one, but most commercial accounts are operated on narrow margins.

Kerosene Listless

The kerosene demand has been listless and one refiner has been trying to secure a movement for his product by offering it through brokers to the trade at 3⅝ cents. The resulting movement has been light but it has had the result of depressing the price situation here until a common quotation is made of 3¾ cents. This is a good example of how little result comes from cutting a price to move a product that is not in demand. There are a certain number of orders which will be placed but they would be placed anyway because the merchandise was needed. So the only result of this reduction in price is to divert the order from one refiner to the other who makes the low price. Very often even the number of such switches is not material.

Furnace and Gas Oil

There was a little more activity in the furnace oil market last week, due to the distributors filling in their stocks of the kinds of furnace oil that are consumed the year around. In addition to the smaller industrial plants which depend on tank truck deliveries there are many of the larger buildings where some power is required for the operation of lighting and elevator systems and the like at all times of the year. The demand covered most all grades but was not for any large quantities but for a day or so there was more activity. There have been no changes in prices. A good distillate sells for 3 cents and zero gas oil which is up to specifications at 2⅝ to 2¾ cents. The 28-30 fuel oil at around 90 cents a barrel and 18-22 good clean odorless oil at 65 cents. These are prices to distributors.

The demand for U. G. I. gas oil is still light and the material hard to move at any sort of a price. A full 32-36 straightrun gas oil cost the dealer from any reliable Group 3 refiner at least 2⅛ cents. Some gas oil is offered for less but it is either a 30-32 or perhaps even lower in gravity or else it has some objection to it in the way of odor or high sulphur. The gas company buyers are very unwilling to pay even a small advance over that price so that the business done is at a close margin and only pays because of the volume.

Fuel Oil

The demand for industrial fuel oil is no more active, in fact some of the dealers reported during the week they had been notified by some of their regular customers to cease deliveries for the present as the plants were down. The takings by monthly buyers have been rather lighter than usual this month and some have explained this was because they had not used all of the oil purchased for the use of the plant during the immediately preceding months. There has been no change in prices, that is no really quotable change. The larger refiners in this territory who are sellers of fuel oil regularly are holding for the same prices of 60 cents for the 18-22 fuel oil. They admit that buyers claim these prices are too high and refuse to order. Some 18-22 fuel oil is being offered by one of the Mid-Continent refiners at 52½ cents. This is a good oil, not a zero cold test which is immaterial now, but having a rather high viscosity but still a very usable oil. In the heavier gravities, say 12 to 16 gravity oil, prices are being quoted as low as 45 cents and in one or two instances a 40-cent price was named for a quantity. The trouble with these oils for the ordinary user of fuel oil is that they have such a high viscosity he finds it difficult to break up the oil properly for feeding to his burners and also the presence of free carbon in excessive quantities in many of these oils. They seem to be gradually finding a place with some of the larger concerns. The present outlook is for rather light buying of the heavy fuel oils by the industries for the next 60 days. The hot weather is now close at hand, vacations will be taken and plants operated on reduced output or closed down. This would be done in any season and the probability is that this season will prove no exception.

Lubs

The lubricating oil situation continues very quiet with a sense of weakness in the price structure. The prices of Pennsylvania bright stocks continue low and there has been some cutting of prices of western bright stocks. One good buyer states he secured a reduction of 4 cents on his contract price and that it was given him voluntarily by the refiner. The demand for compounded motor oils has been rather light. Industrial lubricating oils are selling slowly in this market. Prices unchanged but having an easier tone.

Eastern Gasoline Is Holding Its Own

But Market Is Sagging on Practically All Other Products With Exception of Fuel Oils. Much Hand to Mouth Buying

By A. E. Moekler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, June 16.—Considerable irregularity has developed in the refined products situation in the East and while gasoline, buoyed by a substantial increase in consumption, is holding its own, the market is sagging on practically all other products, with the exception of fuel oils.

Sentiment in the gasoline market continues along constructive lines, but the market is being held closely in check and principal factors in the East Coast area are keeping extremely close watch on the situation in an effort to keep the market on a stable basis throughout the summer motoring season. This policy of conservatism is such that the material increase in volume is being discounted and the market held down closely until the outlook clears to the point where maintenance of higher price levels will present few obstacles. Under normal conditions, it is believed here that the market for U. S. Motor would have reached a 10-cent level by this time, but factors in control of the situation apparently are not willing to let the market go forward until the undertone strengthens to the point where destructive price cutting under the posted schedules would be an extreme improbability.

Undeniable uncertainty exists regarding markets for kerosene, lubricating oils, wax and other minor products. Prices are soft with price shading more or less general and the market is exhibiting considerable hesitancy. Buyers' confidence is lacking, and hand-to-mouth buying appears to be the order of the day.

Tank Car Gasoline

The refinery market has shown a little improvement during the week and it appears that price shading is just about over for this time, at least. All important sellers are now reported to be adhering to the posted price of 9 cents for U. S. Motor as a minimum, with quotations ranging thence up to 10 cents at terminals. The importance of this development is evident when it is considered that, aside from the smaller factors, gasoline is being sold in the New York area by Standard Oil Co. of New Jersey, Standard Oil Co. of New York, Continental Oil Co., Tide Water Oil Co., Colonial Beacon Oil Co., Sinclair Refining, Warner-Quinlan, Richfield Oil Corp. of New York, American Petroleum & Transport Co. and Shell Eastern Petroleum Corp. With this number of important factors actively competing for business, it is becoming a rarity to have all interests quoting in line with the "official" posted schedule.

Jobbers have been in the market in substantial volume throughout the week, and have shown a widespread tendency to keep their storage filled and generous replacement supplies rolling at all times. This indicates a widespread feeling among oil interests in this territory that the market is headed for higher ground. Just when the next advance will materialize is problematical, but the liquidation of the distressed gasoline which had been available here at a quarter cent under the posted price up to this week is taken as a good omen of better things in store for the general market.

Notwithstanding the more favorable outlook, there is an undercurrent of uncertainty among some of the larger factors and for this reason, if no other, it is believed market leaders will be ultra-conservative when it comes to the question of price mark-ups.

Tank Wagon Gasoline

A firmer feeling is in evidence in the tank wagon market, and a higher price basis is looked for in several sections of the eastern territory in the near future. Firming-up in the refinery market has brought about a more cheerful sentiment in tank wagon markets.

Large marketers are effecting many economies in their New York State distribution through more widespread utilization of water transportation in territory that may be served from depots along the barge canal system. A number of large bulk terminals are already in operation along the canal system, and several others are now under construction or projected.

Premium motor fuel sales continue to forge ahead. Some refiners and marketers had been rather apprehensive regarding a continued trend toward the premium fuels, in view of the general economic situation, feeling that consumers would revert to the use of the ordinary quality gasoline for the sake of the saving of 3 cents per gallon, which is the average differential between the ordinary quality motor fuels and the premium grades of most marketers.

Lubs

The market for cylinder oils continues in semidemoralized position, with prices nominal. There have been no further changes in quoted prices since the revisions noted last week, but it is reported here that practically all these prices could be shaded by 1 or 2 cents per gallon on a firm bid. Current bids of buyers are as much as 4 or 5 cents away from the inside figures of refiners and until a trading basis is arrived at, little activity is looked for. Statistically, the market is in slightly better position as a result of the decision of Pennsylvania operators to reduce crude production, but the market will not reflect any real improvement, it is felt here, until some of the burdensome supplies now on the market are liquidated. In the interim, domestic compounders and blenders are operating in hand-to-mouth fashion, and it is reported many of these manufacturing consumers have permitted their reserve holdings to run down to the lowest point reached for several years. The season of heaviest consumption for blended motor lub oils is now getting under way, and refiners evidently believe domestic buyers will be forced into the market shortly to cover their immediate requirements.

Export demand for cylinder oils continues to run far below normal for this season of the year. While foreign distributors are reported to be carrying smaller stocks than usual, it is beginning to be apparent that economic conditions in Europe are worse than had been generally believed, and that a marked drop in consumption of American-made lubricating oils is in sight for this season.

The market for pale and red oils is showing a little softness, in sympathy with weakness in other branches of the market, but this weakness has not yet reached the point where prices have been reduced.

California lub oils have come into eastern markets in a small way during recent weeks, but the quantity has been too small to react against the eastern market to any appreciable extent.

Paraffin Wax

It is still largely a buyers' market on both crude and refined grades and new business has been of rather light proportions in the local market. Prices remain unchanged at the levels established by last week's downward revisions, but buyers' views are still fractionally under these levels, and bids are an eighth to a quarter cent per gallon away from posted quotations.

Export inquiry has picked up a little, but it is reported much of the foreign business is being placed for shipment out of the Gulf. Refinery stocks of wax are still topheavy, and the outlook indicates the necessity for considerable liquidation of excess holdings before the market can be restored to a stable basis.

Kerosene

The market remains in easy position, and trading is along routine lines. The action of Standard Oil Co. of New Jersey and other principal sellers in reducing the posted price of 41-43 water white to 7¼ cents per gallon in tank car lots at refineries has failed to stimulate either demand or market confidence, and the new price is being freely shaded by a quarter cent in many instances.

Distributors are holding kerosene stocks down to a minimum, and new business is of small amount. Refiners expect the consumption pendulum to swing the other way as soon as the summer resort demand for kerosene sets in, but this business is still about a fortnight away.

Atlantic Coast refiners selling out of Bayonne and Philadelphia are running into some stiff competition in parts of their territory from inland Pennsylvania refiners, and this competition is responsible in no small measure for much of the current weakness.

There has been no change in the tank wagon kerosene situation during the week. Business is but moderately active for this season of the year, but marketers have not changed their prices.

Petrolatum

The market for petrolatum has eased off in sympathy with softness in other minor refined products, and prices are lower all along the line. Dark green is quoted at 1¾ cents per pound, down an eighth cent, with amber showing a similar drop at 3¼ cents and extra amber also down an eighth cent at 3⅜ cents per pound. Cream is off a quarter cent at 6⅛ cents per pound, with lily white and snow white registering similar declines at 6¼ cents and 8⅛ cents per pound, respectively. Export demand is rather quiet, and domestic sales are also slow.

Fuel Oil

Volume of sales is well maintained in the market for Bunker "C" oil this week, and principal refiners continue to hold the market firm at $1.15 per barrel, bulk, at refinery terminals. While most of the current business consists of deliveries against standing contracts, there is more spot inquiry in evidence this week.

Domestic demand for fuel oil is showing a tendency to ease off, but this is a seasonal development, and has had no unfavorable reaction on the general market position. Refiners have booked substantial contracts for industrial fuel oil deliveries over the coming winter, and there is also a good tonnage of domestic heating oil business on the books of refiners specializing in that branch.

Diesel Oil

Consistently broadening demand for Diesel oil is keeping that market in firm position, refiners continuing to quote $2 per barrel, bulk, at principal marine terminal points on the East Coast. Volume of business for the first half of 1930 is substantially in excess of that for the comparable period of 1929, and this trend toward larger consumption is expected to continue over the balance of the year.

With the general market working into easier ground, there is less talk here regarding the possibility of an early price increase on Diesel oil.

Gas Oil

Contract movement of 28 plus oil is holding up fairly well, the open market ranging from 4¾ cents to 5¼ cents per gallon, the latter figure being the posted price of the principal seller.

With natural gas pipe line projects reaching into many large consuming centers, renewed interest is being shown locally in the prospects of early piping of natural gas from the southeastern fields into the New York industrial area. A pipe line of this sort is believed to be but a matter of a year or so, and when it is actually a reality, refiners in this area expect an unfavorable reaction on their gas oil business.

Petroleum Exports

A better movement of refined products into export channels developed during the week, but volume was still under expectations for this season of the year, and current inquiry did not indicate the likelihood of any substantial improvement in the near future.

Operators report they are meeting with stiffer competition in export markets from producers in Russia and Rumania, with every indication this competition might become more severe as the summer season progresses.

Weakness in domestic markets affecting all principal products with the exception of gasoline and fuel oils, has tended to weaken the confidence of foreign buyers in the position of the markets, and this has likewise been a potent factor in restricting forward buying of American refined products for shipment abroad.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	June 7	May 31	May 24
Gasoline	50,000	322,000	440,000
Naphtha	335,000	21,000	246,000
Kerosene	255,000	200,000	15,000
Fuel oil	130,000	72,000	10,000
Lubricating oil	2,100,000	1,153,000	1,340,000
Petroleum, refined	650,000	210,000	1,204,000
	Pounds		
Petrolatum		21,000	11,000
Paraffin wax	640,000	1,153,000	533,000
Refined	5,000		932,000
Scale	562,000	535,000	406,000
Lubricating grease	430,000	850,000	1,175,000

Cased gasoline has been moving in good volume, and the market is firm. The market for cased kerosene is easier in line with the lower market for bulk water white at refineries this week.

Imports

Imports of crude and refined oils at the principal United States ports for the week ended June 7 totaled 1,853,000 bbls., a daily average of 264,714 bbls., compared with 1,768,000 bbls., a daily average of 252,571 bbls. for the week ended May 31. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	233,000
Boston	66,000
New York	1,029,000
Philadelphia	230,000
Others	86,000
Total	1,644,000
Daily average	234,857
At Gulf Coast ports—	
Galveston district	131,000
New Orleans	78,000
Total	209,000
Daily average	29,857
At all United States ports—	
Total	1,853,000
Daily average	264,714

Distribution of total imports is as follows:

Crude	1,320,000
Gasoline	249,000
Fuel oil	284,000

There was a total of 1,579,000 bbls. of gasoline imported into the United States during the month of May, an increase of more than 50 per cent over the April im-

ports of 1,073,000 bbls. Imports of fuel oil were also sharply higher last month at 1,615,000 bbls., as contrasted with 1,279,000 bbls. in April, while imports of gas oil were 148,000 bbls., as compared with a total of but 117,000 bbls. for the previous month. Further gains in gasoline import totals are looked for during the next several months.

Gulf Export Market

A dull market has prevailed at the Gulf this week, no additional cargoes being reported, and no cargo inquiries being in the market at the time of writing. An easier sentiment has developed, based on cables indicating Rumanian price cutting in competition with American sellers in Continental markets. Rumors have circulated the market indicating that a break in the Gulf export basis was pending, and these reports, whatever their origin, have done the market no good. One report has it that the association, which is expected to meet this week, will lower the posted prices. It is interesting to note in this connection that rumors of a month or so back had the association contemplating an advance.

Another report, which has tended to cause buyers to withhold placing inquiries at the Gulf, has it that a number of Group 3 refiners, disappointed at the small amount of export business reaching them, have determined to cut prices for Gulf export shipments in an endeavor to stimulate activity. These contemplated price cuts, the rumor adds, will put the market a quarter to a half cent under the posted schedule even if the "official" prices should be lowered.

While all of the above falls distinctly within the "rumor classification," it has nevertheless had a decided effect upon the market, which is essentially a waiting market for the time being, at least.

The inquiry for an 8,000 to 10,000-bbl. cargo of California gasoline, reported last week, has not materialized, and it is reported to have been withdrawn pending further developments. One cargo, as previously noted, was booked for July-August shipment from California.

The fuel oil market remains in firm position at the Gulf, although movement is rather routine.

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended June 7 totaled 347,000 bbls., a daily average of 49,569 bbls., compared with 180,000 bbls., an average of 25,714 bbls. daily for the previous week. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
New York	64,000
Philadelphia	283,000
Total	347,000
Daily average	49,569
At Gulf Coast ports—	
All ports	None
At Atlantic and Gulf Coast ports—	
Total	347,000
Daily average	49,569

Distribution of total California oil receipts is as follows:

Gasoline	231,000
Gas oil	116,000

Receipts of California petroleum products at Gulf Coast ports fell off sharply during the past month, amounting to only 24,000 bbls., as compared with total receipts of 228,000 bbls. during the previous month. The drop is believed to be due to the weak market for gasoline in the Gulf area, which has tended to effectively shut off California competition in that territory.

California refiners are reported to have made a number of bulk cargo shipments of gasoline and naphtha to European ports during the past fortnight, with several other cargoes being inquired for in the Pacific Coast market for shipment to the United Kingdom and France.

OKLAHOMA P. L. REPORT

The Oklahoma Pipe Line Co.'s report of business done in May in Oklahoma and Kansas follows: Pipe Line receipts, 3,465,143.50 bbls.; daily average, 111,778.82 bbls.; deliveries, 3,554,506.78 bbls.; daily average, 114,661.51 bbls.; stocks June 1, 3,369,064.50 bbls.

PRICE WARS BRING REDUCTIONS IN AVERAGE TANK WAGON QUOTATIONS

Local reductions were more important than general advances in three states during May and as a result the average gasoline tank wagon price (exclusive of tax) in The Oil and Gas Journal's 50 representative cities was less at the end of the month than at the start.

The average price on May 1 was 15.27 cents and 15.25 on June 1, a reduction of .02 cent per gallon for the month. The May reduction followed an advance of almost 1 cent a gallon in April. The June 1 average compares with an average of 15.8 cents for June 1, 1929, and 15.22 cents June 1, 1928.

On May 24 there was a general advance of 1 cent a gallon tank wagon prices in Ohio followed by a similar advance in Pennsylvania and Delaware on May 29. On May 19 there was a local advance of 1 cent at Charlotte, N. C., restoring normal price schedules at that point.

These advances so far as the average for the 50 cities was concerned were offset by declines brought about by local conditions. The following reductions became effective during May: Birmingham, Ala., May 21, 1 cent; Dallas, Tex., May 24, 2 cents; Phoenix, Ariz., 1 cent, May 27; Denver, Colo., May 31, 1 cent.

These reductions reflect a weak situation in the refinery tank car market which developed in several refining areas during May. The lower prices brought price cutting in the retail market at a few points and in the cities mentioned resulted in lower postings by the major distributors. Unless the refinery tank car market improves it is probable that additional decreases will develop during June with a possibility that general reductions will become effective. It was thought at the start of May that tank wagon prices would continue to advance in several areas as prices, despite the April increases, were still below the high point for 1929.

TANK WAGON PRICES EXCLUSIVE OF TAX IN 50 REPRESENTATIVE CITIES

	Prices May 1	Price changes May	Prices June 1	High and low 1929		High and low 1928		Tax May 1
Birmingham, Ala.	16.0	21 15.0	15.0	18.0	13.0	18.0	14 0	*5.0
Phoenix, Ariz.	14.0	27 13.0	13.0	14.0	14.0	18.0	14.0	4.0
Little Rock, Ark.	13.0	....	13.0	15.0	12.0	16.0	11.0	5.0
San Francisco, Calif.	18.5	....	18.5	17.0	12.0	14.0	14.0	3.0
Denver, Colo.	13.0	31 12 0	12.0	15.0	11.0	16.0	13.0	4.0
Hartford, Conn.	14.5	....	14.5	18.0	16.0	18.0	16.0	2.0
Dover, Del.	15.0	29 16.0	16.0	17.0	15.0	18.0	16.0	3.0
Jacksonville, Fla.‡	15.0	....	15.0	18.0	16.0	18.0	13.0	6.0
Atlanta, Ga.‡	15.0	....	15.0	18.0	14.0	18.0	13.0	6.0
Boise, Idaho	18.5	....	18.5	20.5	17.5	20.5	19.5	5.0
Peoria, Ill.	15.2	....	15.2	16.2	14.2	15.2	9.0	3.0
Chicago, Ill.	15 0	....	15.0	16.0	14.0	15.0	14.0	3.0
Indianapolis, Ind.	15.2	....	15.2	16.2	14.2	15.2	10.2	4.0
Des Moines, Iowa	15.5	....	15.5	16.5	14.5	15.5	11.9	3.0
Wichita, Kans.	13.8	....	13.8	14.8	12.8	13.8	10.8	3.0
Louisville, Ky.	16.0	....	15.0	16.0	15.0	16.0	13.0	5.0
New Orleans, La.	11.0	....	11.0	13.5	10.0	14.5	10 5	*5.0
Augusta, Me.	15.8	....	15.8	17.0	16.0	18.0	17.0	4.0
Baltimore, Md.	13.2	....	13.2	16.0	14.0	16.0	15.0	4.0
Springfield, Mass.	15.5	....	15.5	18.0	16.0	18.0	16.0	2.0
Detroit, Mich.	15.8	....	15.8	16.8	14.8	15.8	11.8	3.0
Duluth, Minn.	16 5	....	16.5	17.5	15.5	16.5	12.5	3.0
Natchez, Miss.	14.5	....	14.5	16.5	14.0	16.5	12.5	5.0
Kansas City, Mo.	14.9	....	14.9	15.9	13.9	14.9	10.9	*3.0
Helena, Mont.	19.5	....	19.5	20.5	19 5	20.5	19.5	5.0
Omaha, Neb.	15.25	....	15.25	16.25	14.25	15.25	13.25	4.0
Reno, Nev.	23.0	....	23.0	20.0	18.0	18.0	18.0	4.0
Newark, N. J.	13.5	....	13.5	15 0	14.0	16.0	15.0	2.0
Albuquerque, N. Mex.	16.0	....	16.0	17.0	15.0	17.0	14.0	5.0
New York, N. Y.	14.3	....	14.3	18.0	14.0	18.0	17.0	2.0
Charlotte, N. C.	14.3	19 15.3	15.3	16.0	12.0	17.0	15.0	5.0
Fargo, N. Dak.	17.9	....	17.9	18.9	16.9	17.9	12.0	3.0
Cleveland, Ohio	15.0	24 16.0	16.0	16.0	14.0	16.0	14.0	4.0
Tulsa, Okla.	12 0	....	12.0	14.0	10.0	14.0	10.0	4.0
Portland, Ore.	19.5	....	19.5	17.5	12.5	14.5	14.5	4.0
Philadelphia, Pa.	15.0	29 16.0	16.0	17.0	15.0	18.0	15.0	†4.0
Providence, R. I.	14.7	....	14.7	18 0	16.0	19.0	17.0	2.0
Charleston, S. C.	13.3	....	13.3	16.0	14.0	17.0	15.0	6.0
Huron, S. Dak.	16.3	....	16.3	17.3	15.3	16.3	14.5	4.0
Memphis, Tenn.	13 0	....	13.0	15.0	11.0	16.0	12.0	5.0
Dallas, Tex.	12.0	24 10.0	10.0	14.0	11.0	14.0	9.0	4.0
Salt Lake City, Utah	16.5	....	16.5	18.5	17.5	18.5	16.5	3.5
Burlington, Vt.	15 6	....	15.6	17.0	15.0	18.0	17.0	4.0
Norfolk, Va.	13.3	....	13.3	16.0	14.0	16.0	14.0	5.0
Washington, D. C.	13.7	....	13.7	16.0	14.0	16.0	15.0	2.0
Charleston, W. Va.	14.5	....	14.5	16.0	14.0	17.0	15.0	4.0
Milwaukee, Wis.	15.1	....	15.1	16.1	14.1	15.1	13.1	2.0
Casper, Wyo.	15.0	....	15.0	17.0	15.0	16.0	14.0	4.0
Seattle, Wash.	19 5	....	19.5	17.5	12.5	14.5	14.5	3.0
Minneapolis, Minn.	16.2	....	16.2	17.2	15.2	16.2	11.0	3.0
Average price	15.27	....	15.25	16.70	14.26	16.54	12.54	3.79

*Includes 1-cent city tax. †Paid by dealer. ‡Jacksonville prices include one-eighth cent inspection fee, but at Atlanta one-half cent fee is not included.

AVERAGE TANK WAGON PRICES IN 50 CITIES

Gasoline
(Exclusive of tax)

January 1, 1928	14.29
February 1	14.33
March 1	14.71
April 1	14.81
May 1	15.02
June 1	15.22
July 1	15.29
August 1	15.74
September 1	16.04
October 1	16.34
November 1	16.28
December 1	15.98
January 1, 1929	16.00
February 1	15.11
March 1	14.73
April 1	14.90
May 1	14.94
June 1	15.80
July 1	16.02
August 1	15.82
September 1	15.74
October 1	16.00
November 1	15.82
December 1	15.59
January 1, 1930	15.45
February 1	15.36
March 1	14.54
April 1	14.26
May 1	15.27
June 1	15.25

CALIFORNIA FIELDS

(Continued from Page 64)

present time, some of which should be tanking oil shortly. One of these is Dabney & Johnston's No. 66 Signal, which has just been finished at 6,748 feet. This potential producer has 319 feet of oil sand from which to draw and should result in commercial production.

The Standard Oil Co. finished two new wells in the Inglewood Field of Los Angeles basin, one of which, well No. 63 on Los Angeles Investment Lease No. 1, was drilled with a Diesel electric drive utilizing direct current instead of alternating current, as has been customary. This well, bottomed at 2,625 feet and finished with an 11¾-inch oil string carrying 1,212 feet of perforated, was good for 275 bbls. per day. Well No. 24 on Vickers Lease No. 1, completed at 2,500 feet and finished with an 11¾-inch oil string carrying 925 feet of perforated, was good for 100 bbls. per day on the beam. In the West Coyote Field of Los Angeles basin the Standard has five drilling projects on the Emery and Murphy leases rotating ahead below the 3,000-foot level. One of these, No. 46 Emery, will probably be completed within the next 30 days as it is making hole below 4,000 feet. The Smith Petroleum Co. has set a string of 8⅝-inch in No. 3 Johnson, a new well in the Lawndale Field, and this 7,065-foot hole should be tested out shortly. The Union Oil Co. completed No. 8 Rosecrans, a former upper zone producer in the Rosecrans Field of Los Angeles basin, after redrilling and deepening it to 5,970 feet, from which depth it was brought in pumping 335 bbls. per day. The Union has two other drillers under way in this field at the present time and is rigging up another, No. 15 Rosecrans, for early work.

Natural Gasoline Manufacture

Discuss Basis for Changes in Motor Fuel Requirements

By Oscar C. Bridgeman*

Federal specifications for gasolines are based on the research work of the petroleum and automotive industries, and of various government departments including the Bureau of Standards. Their aim is to insure the purchase of good gasolines by the Government, at a reasonable cost, on the basis of tests which are significant from the standpoint of engine performance. While all of the tests employed at present may not be as significant as is desirable, research work along these lines is continually being conducted at the bureau and elsewhere, the results forming a basis for changes in the tests and modifications in the specifications leading towards the desired end.

The present discussion is limited to those tests and specifications which are now in effect or the modification of which is under contemplation. These include volatility, vapor pressure, gum content and sulphur content, which will be considered briefly in the order named.

One of the most important characteristics of a fuel from the standpoint of engine performance is the volatility, or the ease with which the gasoline will evaporate under the given conditions. The test for volatility consists in distilling the gasoline under specified conditions which have standardized by the American Society for Testing Materials. The significance of this test has been amply demonstrated by the research work of the bureau during the past few years, which is summarized in a recent paper.[1] The interpretation of the volatility test in terms of engine performance has been so successful that, given the requirements of the engine, it is now possible to specify the desired volatility characteristics with reasonable assurance. This interpretation is only significant when the distillation points are expressed in terms of percentage evaporated, which is the percentage distilled plus the distillation loss. Some of the more important phases of engine performance related to volatility are briefly discussed in the following sections.

Engine Performance

1. Engine Starting—In order that an engine may start, an explosive mixture must be formed in the cylinders, and the ease with which this occurs is determined by the temperature at which 10 per cent of the gasoline is evaporated in the A.S.T.M. distillation test.[2] A lower 10 per cent point indicates easier starting under comparable conditions. For the average car on the road and an average gasoline, the temperature below which starting will not be easy is approximately 140° F. below the A.S.T.M. temperature at 10 per cent evaporated.

2. Vapor Lock—Vapor lock is the partial or complete interruption of gasoline flow in the fuel feed lines due to the formation of bubbles of gas or vapor. It is ordinarily not serious until the gasoline commences to boil and this temperature for properly stabilized gasolines is the A.S.T.M. 10 per cent point.[3]

3. Acceleration—In a given engine, the effectiveness of the fuel for producing acceleration appears to be dependent upon the A.S.T.M. distillation curve, better acceleration being obtained with a fuel which is more volatile between the

(Continued on Page 157)

*Publication approved by the director of the Bureau of Standards of the United States Department of Commerce.

[1] S.A.E. Journal, October, 1929, p. 345.
[2] S.A.E. Journal, March, 1927, p. 353.
[3] A.P.I. Bulletin, January 3, 1930, Sec. III, p. 4.

Construction and Operation

CONTROL OF OPERATING EXPENSE

In any scheme of plant operation the set-up provides for office control of manufacturing expense and the character of the product or products manufactured. It is not enough for the general office to lay out a general plan. It must, through machinery of its own, follow up these general orders in order to be certain that the details are carried out to the letter. In the best ordered organization a certain amount of checking up must be done to keep the machinery in good order.

The average plant superintendent quite naturally desires that above all his plant should maintain a good outward appearance. To him this hardly comes second to efficiency. While he is in charge of the plant and all of its operations, he is not always in the best position to know how far to commit the company to expenses outside of the barest necessities to keep the wheels going. If the closest control of costs is desired, the general office should authorize the extent of the manpower over and above the tour force. Except in emergencies, the office should be consulted relative to the employment of "surplus labor" in order that the contemplated work may be vetoed if necessary, according to the then existing policy of the company with regard to engaging in "extra routine" work, such as painting, renovating, and other yard improvements which can increase maintenance costs materially, according to the tasks of the particular superintendent.

A number of companies control this situation by requiring written authorizations not only for new capital investments—however small they may be—but, as well, for all extra routine operations in which the only expenditures may be for labor. Where telephone contact is maintained with plants daily, those plants give an oral report showing the "surplus labor" as above defined on the payroll that day. In other cases the information comes through on a special form provided for that purpose.

This gives instant control to the office which may give special instructions if the situation at a particular plant is not working in harmony with the general plan. It is too late to await the accounting records, which are historical only, save for the purpose of balancing the daily reports with the figures which flow into the final records of the operations. To have control is to have current information of these expenditures. The writer has known large plants where the extras employed in general repairs, painting, cleaning, etc., increased "operating" expense 100 per cent.

By proper pruning of this force and by the allocation of a good part of the cleaning, repairs, and inside painting to the regular force, the surplus labor expense can be very largely reduced. Too often there is a tendency to employ extra help for so much of this sort of work that is in fact part of the routine of the tour force, except in those plants of unusually large size where purely processing operations engage the full time of operators.

Emergency Purchases

Stringent supervision by the office of emergency purchases of material from supply house or storehouse is no less necessary than that of the employment of extra help. Except for the most urgent emergency, which could not in the nature of things have been foreseen, many concerns require that office authority be obtained before the purchase is made. Most companies cause supplies to be requisitioned periodically so as to avoid emergency purchases. Not only do these purchases lose about 10 per cent to the company, but the control of expenditures is taken away from the office which has the responsibility therefor. This usurpation of the functions of the purchasing department deprives the company of the benefits of "trade and barter." There are nearly always occasions when materials can be purchased from one concern at a lower price than from another, due to the fact that the one may desire to reduce inventories, etc. By having requisitions come in periodically and grouped, the purchasing agent can obtain better prices on quantity purchases and can often substitute one material for another at a lower price. In some cases he may find that the company has the necessary equipment or materials on another property. All of these savings are made impossible if the plant can go out and buy at will.

Requiring Estimates

A good way to assist in this control is to require on requisitions an estimate of how long ordered material will last, for what it will be used, etc. This gives the office an opportunity to use some intelligence in connection with its approval of the purchase requisition. A rubber stamp approval is nothing short of waste. If, as, and when a field emergency order is issued for material, it is well to require a detailed explanation of the "emergency." This requirement has, to the writer's knowledge, had the effect of reducing the emergencies, and caused a greater degree of efficiency in anticipating requirements by requisition.

These forms of contact with the details of plant expense give the departmental management the sort of control of manufacturing costs that is necessary if they are to be held at the minimum. No showing can be made on many other items, such as costs of gas, salaries, hours of labor, freight, etc., because they are fixed. It is the flexible costs that must be watched.

Sixteenth of a series of articles explaining the inner workings of a natural gasoline organization. The series was prepared by an operator actively engaged in all phases of construction and operation.

Who's Who
IN NATURAL GASOLINE MANUFACTURE

COLUMBIAN GASOLINE CORP.

The Columbian Gasoline Corp. is the owner of several gasoline plants in Texas and Louisiana and through affiliated companies is in charge of the operation of other plants. The corporation is a 100 per cent owned subsidiary of the Columbian Gasoline Corp, with headquarters at 45 East Forty-second Street, New York City. The main operating office of the gasoline corporation is located at Monroe, La., near the Louisiana properties. The Columbian interests are major factors in the natural gas and carbon black industries.

The Columbian corporation operates the plants of the Coltexo Corp. located in the Texas Panhandle. The latter company is a subsidiary of the Columbian Carbon Co., which owns 51 per cent of the stock. The remaining stock is owned by The Texas Corp. A plant of the Monroe-Louisiana Carbon Co. in Louisiana is also operated by the Columbian Gasoline Corp. Part of the stock of the Monroe-Louisiana Co. is owned by the Columbian Gasoline Corp.

All construction and operating activities of the three natural gasoline companies center in the Monroe office. W. E. Reardon is general superintendent of plants and W. A. Anders, sales manager.

Following is a list of the plants of the three companies:

COLUMBIAN GASOLINE CORP.

Texas

Location—	Dy. capacity
Section 46, Block 17, H.&G.N. Survey, Wheeler County	10,000

Louisiana

N half SW Section 10-16n-6e, Richland Parish	16,000
E half Section 5-18n-5e, Ouachita Parish	16,000
South portion Section 37-19n-4e, Ouachita Parish	8,000
SW Section 2-10n-4e, Ouachita Parish	16,000
NW Section 19-20n-5e, Morehouse Parish	6,000
Section 37-20n-5e, Morehouse Parish.	8,000

COLTEXO CORP.

Texas

NW Section 2, A.C.H.&B. Survey, Block 1, Gray County	25,000
NE Section 1, Block B-2, H.&G.N. Survey, Gray County	25,000
B. & B. Survey No. 2, Gray County..	10,000

MONROE-LOUISIANA CARBON CO.

Louisiana

Sections 28 and 33-19-5e, Ouachita Parish	3,000

EMPIRE BUILDING PLANT IN WANETTE-ASHER AREA

The natural gasoline division of the Empire Oil & Refining Co., Bartlesville, Okla., has begun construction of a natural gasoline plant in the newly developed Wanette-Asher Field, in southern Pottawatomie County, Oklahoma. This will give the Empire Companies a total of 20 operating plants. Distillation units, absorbers, compressors and other accessories are available in the Seminole area, making possible the operation of the plant in fast time.

The initial capacity will be 10,000,000 feet at 50 pounds pressure, with provision for adding units as the field is developed. The major part of the producing and prospective area is under contract. Production from the first unit is expected to be 20,000 gallons daily.

REFINERY UTILIZATION

California leads all other refining groups in the utilization of natural gasoline according to reports of the Bureau of Mines. Reports for the first four months of this year show that 19.2 per cent of the total refinery output was natural gas in the West Coast state. The inland group of Louisiana and Arkansas refineries is second with 17 per cent.

The following table shows the per cent of natural gasoline for the first four months: East Coast, 4.5 per cent; Appalachian, 3.5 per cent; Indiana, Illinois, 4.1 per cent; Oklahoma, Kansas, 8.1 per cent; inland Texas, 9.7 per cent; inland Louisiana, Arkansas, 17 per cent; Gulf Texas, 11.7 per cent; Gulf Louisiana, 16.2 per cent; Rocky Mountains, 10.5 per cent; California, 19.2 per cent; United States, 10.3 per cent and Mid-Continent, 9.3 per cent.

Brief Items for Petroleum Refiners

Will Consider New Specifications at Philadelphia Meet

PHILADELPHIA, Pa., June 16.—A joint meeting of the D-2 committee of the American Society for Testing Materials and the American Petroleum Institute will be called here June 24 to discuss possible revisions in the present specifications on gasoline purchased by the various government agencies. Dr. H. C. Dickinson has recommended these changes for consideration by the two committees before submitting them for approval to the Federal specifications board.

Probably the most important change proposed is the adoption of a vapor pressure specification on all grades of gasoline. This has been tentatively suggested and has been set at a maximum of 10 pounds at 100° F. taken by the Reid method.

Considerable discussion is expected on this point for it is thought that much of the gasoline being sold as U. S. Motor gasoline during the winter months of the past would not pass this specification and that there would be a material lessening of the amount of natural gasoline used unless the present quality was changed. To do this the manufacturers would be called upon to produce what in the past has been considered a "superstabilized" product.

The proposal has been based on experimental work done at the Bureau of Standards in which it was found that vapor pressures in excess of 10 pounds specified often caused a vapor lock in the motor and these findings are said to have been substantially in agreement with findings in other laboratories.

Two More Grades

The next most important proposal is that of including specifications for two additional grades of gasoline. The purpose of increasing the number of grades is to give the various government agencies a greater flexibility in buying gasoline to meet specific needs. As an example, a Motor Fuel T is proposed as a suitable motor fuel for use and storage in tropical areas. Similarly a Motor Fuel F is proposed for use in exceptionally cold climates. It has also been proposed that instead of showing a distillation loss as part of the distillation data that it be added to the distillate first recovered in the flask and included in the first 10 per cent point reported. Thus a gasoline having a recovery of 96 per cent would occasion adding 4 per cent on the distillation results over the entire range starting with the first 10 per cent specification.

A vapor pressure specification has been proposed on the two grades of aviation fuels also but it has been found that the fuels now generally available meet this within a comfortable margin.

The newly proposed changes have been submitted to various refiners and gasoline manufacturers for comments and the importance of any change is recognized by the fact that any change in the government specifications automatically changes the specifications of gasoline purchased by many of the states and furthermore, the government specifications in the past have been looked upon as the basis for judging quality and denoting grades in general marketing.

Thus the Government is faced with the problem of formulating specifications which will adequately serve all of its various purchasing agencies during all periods of the year and for all climates and at the same time not penalize the industry by demanding a quality which limits its production or greatly increases manufacturing costs.

MR. BURNS APPOINTED SHELL REGIONAL HEAD

Appointment of G. A. Burns as northern regional manager for the Shell Petroleum Corp., with headquarters in Chicago, has been announced from the general offices of the corporation in St. Louis. He succeeds W. K. Evans. Mr. Burns, who was western regional manager, has been connected with the company 12 years. Starting in the accounting department, he later was transferred to the credit department, becoming general credit manager. He not only supervised the credit department but made an

G. A. Burns

exhaustive study of sales as related to credits and in addition did actual selling. He was made Missouri division manager on September 1, 1929, with headquarters in St. Louis. Last January 1, Mr. Burns was appointed western regional manager.

Mr. Burns now has under his supervision the sales activities of the company in Illinois, Wisconsin, Michigan, Indiana and Ohio. Before joining the Shell organization in 1918, Mr. Burns was connected with several Chicago banking institutions, including the Continental Commercial Bank, the Union Trust Co. and the Merchants Loan & Trust Co. During that time he acquired an intimate knowledge of banking and finance as well as a wide acquaintance among business leaders. Regional offices of the Shell company occupy the entire fourteenth floor of the Blum Building at 624 South Michigan Boulevard, Chicago.

J. J. THIESEN A DIRECTOR

CHICAGO, June 14.—J. J. Thiesen of the Thiesen-Clemens Oil Co., St. Joseph, Mich., has been elected a director of the Mid-Continent Petroleum Corp. Mr. Thiesen is active in the Dixie Jobbers Association.

ENLARGE COSDEN PLANT

The Cosden Oil Co. is contemplating increasing the capacity of its Big Spring, Tex., refinery from 10,000 bbls. daily capacity to around 16,500 bbls. daily capacity, the work to start on this addition in about two weeks. This addition is being made in order to take care of oil being produced by the company on its Ector County leases in the Penn Pool. The Magnolia Pipe Line Co. transports the crude from this pool to the refinery at Big Spring, Cosden paying carrying charges between the two points.

START CONSTRUCTION OF NEW OKLAHOMA REFINERY

The Black Gold Refining Co., of which Dan A. Corcoran is president, has started the construction of a small refinery in the Oklahoma City Field of Oklahoma. The plant, which is located in the C, Section 35-11-3w, will have a capacity of 1,000 bbls. daily. Construction work will be rushed. The plant will have Santa Fe loading facilities.

Mr. Corcoran is well known in Mid-Continent refining and marketing circles. He was formerly vice president in charge of refineries for the Wirt Franklin Petroleum Corp. of Ardmore, Okla.

CHANGES MADE IN GRAYBURG

SAN ANTONIO, Tex., June 16.—Control of the Grayburg Oil Co. has passed from local hands under recent changes announced here. Indiana Southwestern Gas & Utilities Co., the announcement said, now owns approximately 90 per cent of the stock of the company and John W. Choate, until recently vice president and general manager, has resigned. Arthur J. Devlin is now vice president and general manager with headquarters in San Antonio. Arthur D. Kohler, San Antonio, is treasurer. Other officers include S. M. Newton, New York, president; F. L. Tormey, New York, secretary; Newton, Devlin, Kohler, C. E. Josten of New York and W. B. Harrell, Dallas, directors.

INVESTIGATING REFINERY FIRE

PORT ARTHUR, Tex., June 16.—W. K. Holmes, superintendent of The Texas Company refinery here, has started an investigation into the fire which last week virtually destroyed the plant, causing the death of one man and serious injury of 11 others, with a property loss exceeding $1,000,000. The fire started with an explosion in one of the agitator treatment plants. It was believed likely that light oil spilled over an agitator and running over nearby private tracks of the company was ignited by a spark. Leonard Hatch was burned to death.

SHELL EXPANSION PLANNED

LOUISVILLE, Ky., June 16.—Paul Stivers of the development department of Shell Petroleum Corp., St. Louis, said here his company plans to expend $1,500,000 to $2,000,000 in establishing 100 service stations in Louisville and also will establish a number of stations just across the river at Jeffersonville and New Albany, Ind., He said the total outlay might exceed $2,500,000.

SCHLEE ORGANIZES COMPANY

DETROIT, Mich., June 16.—A. G. Schlee, one of the brothers who formerly owned and operated the Waco Oil Co., which was bought by the Paragon Refining Co., has organized an oil company bearing his name and will engage in the distribution of all classes of petroleum products in this city.

JOHNSON BUYS QUALITY OIL CO.

CHICAGO, June 14.—The Johnson High Test Oil Co. of Freeport, Ill., has bought the Quality Oil Co. of Dubuque, Iowa. The latter company has seven service stations and a bulk plant.

OPENS MINNEAPOLIS OFFICE

The White Oak Refining Co., Tulsa, has opened a general sales office at 2004 Foshay Tower, Minneapolis, Minn., for the purpose of handling sales covering Wisconsin, Minnesota, North and South Dakota, Iowa and Nebraska.

STANDARD OF NEW JERSEY EXPLAINS NEW CONTRACT

NEW YORK, June 17.—Although Royal Dutch-Shell will participate in the foreign hydrogenation patents of Standard Oil Co. of New Jersey and I. G. Farben Industries, the American Shell companies will have no interest in United States patent rights save that acquired through participation in the licensing plan for all American oil companies already announced, says the Standard Oil Co. of New Jersey in a statement on the hydrogenation situation abroad. Commenting on the recent statement by Sir Henri Deterding at the annual meeting of Royal Dutch that the company would co-operate with New Jersey Standard and I. G. in developing hydrogenation, the New Jersey statement says: "These negotiations were carried on by the foreign interests of the Standard Oil Co. of New Jersey and have resulted in the working out of a plan by which the Royal Dutch-Shell group will acquire a participation in the foreign patents relating to the hydrogenation process. Under this plan it is expected that there will be applied in the principal nations abroad the same general system of licensing which is now being worked out in the United States, providing for the control of the patents in each country by a local group made of those interested in their development and use in that country. Included in this arrangement will be a complete exchange between foreign and domestic users of the hydrogenation process of the technical information and of the right to use improvements.

"The Royal Dutch-Shell interests, which comprise the only foreign petroleum organization operating in this country on a substantial scale, will participate in the proposed plan for licensing in the United States on the same basis as other oil companies operating here. They will have no interest, however, in United States patent rights save that acquired through such participation."

SULLIVAN REFINERY AT DAYTON, N. M., PURCHASED

DENVER, Colo., June 16.—The refinery of the Sullivan Refineries, Inc., at Dayton, Eddy County, New Mexico, has been purchased by Stephen Lanning and associates of Inglewood, Calif., and will be reconditioned and put into operation. The plans are reported to include the construction of a 6-mile pipe line from the Twin Mounds Pool, southeast of the Artesia Field, where George F. Getty, Inc. has a number of wells producing heavy black oil, and to run this oil.

After taking off the lighter fractions, the residue will be used for the construction of highways by the State Highway Department of New Mexico. The Dayton refinery was constructed in 1926 after the Illinois Pipe Line Co. had built a pipe line from the Artesia Field to Dayton. It had a charging capacity of 1,550 bbls. a day and has been idle for some time.

START REFINERY CONSTRUCTION

The Macmillan Petroleum Products Co. will start work this week on its new refinery at Norphlet in the Smackover Field of Arkansas. The company expects to move its present plant at El Dorado, Ark., to this location and will double the capacity. The new plant will use the Sheldon-Boner process which is in operation at the El Dorado refinery. The new construction will involve an expenditure of approximately $500,000.

Griscom-Russell

Heat Transfer Apparatus

HEAT EXCHANGERS
CONDENSERS
Sub-cooling—Partial—Reflux
Shell-and-Tube, Atmospheric, and Condenser Box Types
COOLERS
Liquid—Gas—Jacket Water
Shell-and-Tube, Atmospheric, and Condenser Box Types
OIL HEATERS
LEVEL CONTROLLERS

Earning Repeat Orders at Coltexo

A FEW years ago the Pampa, Texas, plant of The Coltexo Corporation installed a number of G-R Shell-and-Tube Heat Exchangers and Preheaters, and G-R Bentube Atmospheric Cooling Sections.

When the capacity of this plant was recently increased, G-R Equipment was again selected because of the satisfactory performance of the previous installations.

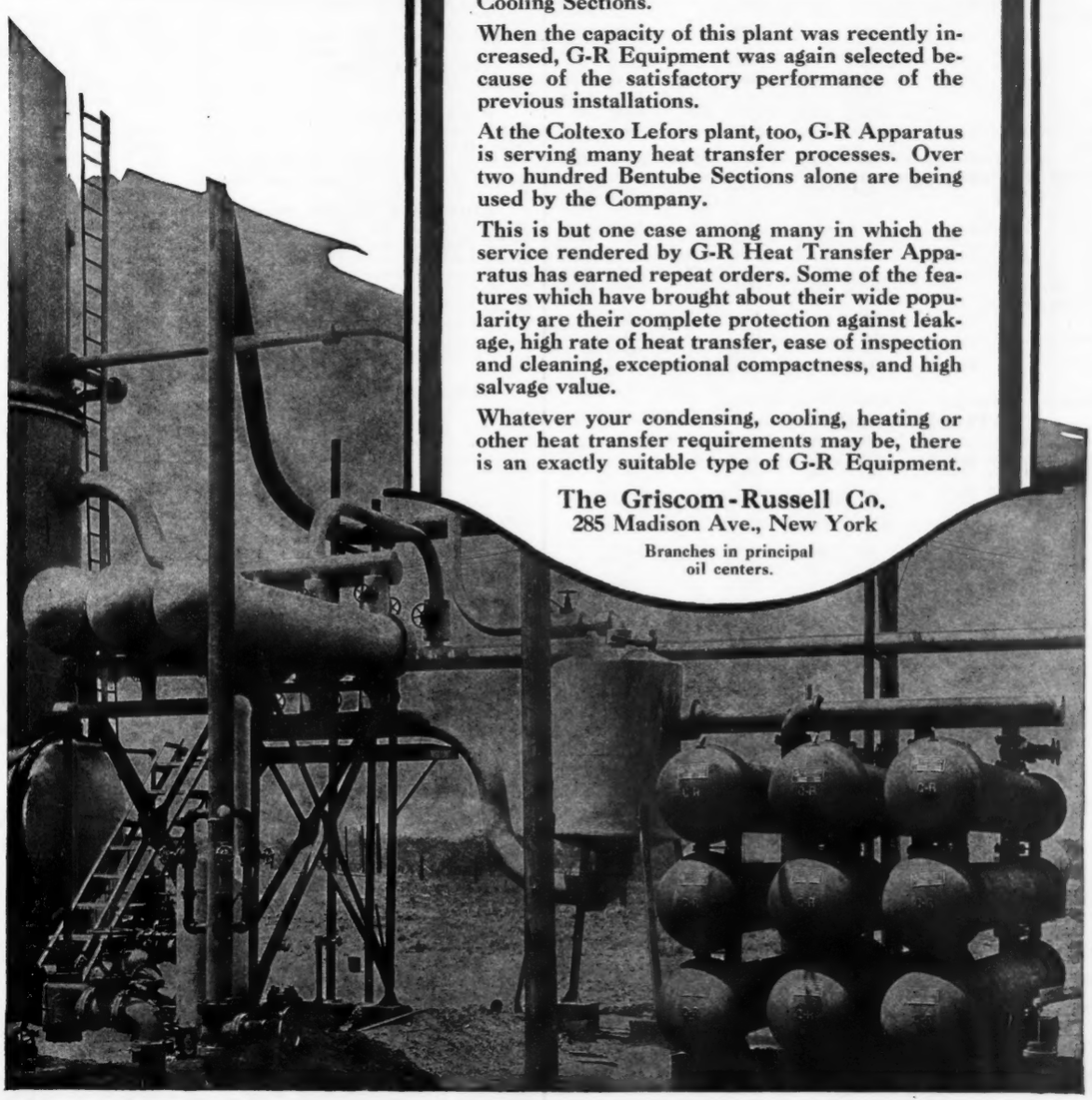
At the Coltexo Lefors plant, too, G-R Apparatus is serving many heat transfer processes. Over two hundred Bentube Sections alone are being used by the Company.

This is but one case among many in which the service rendered by G-R Heat Transfer Apparatus has earned repeat orders. Some of the features which have brought about their wide popularity are their complete protection against leakage, high rate of heat transfer, ease of inspection and cleaning, exceptional compactness, and high salvage value.

Whatever your condensing, cooling, heating or other heat transfer requirements may be, there is an exactly suitable type of G-R Equipment.

The Griscom-Russell Co.
285 Madison Ave., New York

Branches in principal oil centers.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	June 17		June 10		June 3	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.06¼	.06⅜	.06½	.07	.06⅜	.07¼
56-58 450 endpoint	.06¼	.06½	.06¼	.06⅜	.06½	.06⅜
*58-60 437 endpoint (U. S. Motor)	.07		.0725		.07375	
*60-62 437 endpoint	.07¼		†.07	.07¼	.07625	
*60-62 400 endpoint	.07375		†.07¼	.07½	.0775	
*64-66 375 endpoint	†.07	.07¼	.08		†.07¼	.07⅜
68-70 360 endpoint	.07¼	.07½	.07½	.07⅜	.07½	.07⅜
64-66 437 endpoint (blend)	.06	.06¼	.06½	.06⅜	.06½	.06⅜

*Weighted average prices June 16, 9 and 2 as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices show general market.

NORTH TEXAS—						
56-58 450 endpoint	.06	.06¼	.06¼	.06½	.06½	.06⅜
58-60 450 endpoint	.06	.06¼	.06¼	.06½	.06¼	.06½
58-60 437 endpoint (U. S. Motor)	.06⅛	.06½	.06⅜	.06⅜	.06½	.06⅜
60-62 400 endpoint	.06⅜	.06⅝	.06⅝	.06¾	.06¾	.07
64-66 390 endpoint	.06⅝	.06¾	.06¾	.07	.06⅞	.07⅛
64-66 375 endpoint	.07	.07¼	.07¼	.07½	.07¼	.07½
68-70 360 endpoint	.07¼	.07½	.07½	.07⅝	.07½	.07¾
64-66 437 endpoint (blend)	.06¼	.06½	.06½	.06¾	.06½	.06¾
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.07⅛	.07¼	.07⅛	.07¼	.07½	.07¾
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.07		.07		.07½	.07¾
PENNSYLVANIA—						
52-54 Naphtha	.07½		.07½		.07¾	
54-56 Naphtha	.07¾		.08		.08	
58-60 Gasoline	.08¼		.08¼		.08¼	
60 Gasoline	.08¼	.08⅛	.08¼	.08½	.08½	.08¾
62 Gasoline	.08½		.08½		.08½	.08¾
64 Gasoline	.08½	.08⅝	.08⅝	.08¾	.08¾	.09
68-70 350 endpoint gasoline	.09		.09		.09	
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.07	.07½	.07	.07½	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.06½	.06¾	.06¾	.07	.06¾	.07
56-58 450 endpoint	.06⅛	.06¼	.06½	.07	.06½	.07
58-60 437 endpoint (U. S. Motor)	.06¼	.06⅜	.06½	.07	.06⅝	.07
60-62 400 endpoint	.06½	.06¾	.06¾	.07	.07	.07½
64-66 375 endpoint	.07	.07¼	.07¼	.07½	.07¼	.07½
68-70 360 endpoint	.07⅜	.07½	.07½	.07¾	.07½	.07¾
64-66 437 endpoint (blend)	.06¼	.06½	.06½	.07	.06⅝	.07⅛
GULF COAST (Export)—						
58-60 U. S. Motor	.08		.08		.08	
60-62 400 endpoint	.09		.09		.09	
61-63 390 endpoint	.09¼		.09¼		.09¼	
64-66 375 endpoint	.09½		.09½		.09½	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

NATURAL GASOLINE

	June 17		June 10		June 3	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06	.06⅛	.06⅛	.06¼	.60⅛	.06¼
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05¾	.06	.06		.06	
Grade B, 76-83.9, 375 e.p., rec. 85%	.05½		.05½		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05¼	.05½	.05¼	.05½	.05¾	
Grade C, 80-92, 375 e.p., rec. 78%	.05¼	.05½	.05¼		.05½	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06	.06⅛	.06⅛	.06¼	.06⅛	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05¾	.06	.06		.06	
Grade B, 76-83.9, 375 e.p., rec. 85%	.05½		.05½		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05¼	.05½	.05¼	.05½	.05⅝	.05¾
Grade C, 80-92, 375 e.p., rec. 78%	.05¼	.05½	.05¼	.05½	.05½	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.06¼	.06⅜	.06¼	.06⅜	.06¼	.06⅜
Grade BB, 84-92, 375 e.p., rec. 85%	.05½	.05¾	.05⅝	.06	.05⅞	.06
Grade C, 80-92, 375 e.p., rec. 78%	.05½		.05½	.05¾	.05¾	
CALIFORNIA—						
75-78 375-390 endpoint	.06¾	.07¼	.06¾	.07¾	.06¾	.07¾
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06⅛		.06⅛	.06¼	.06⅛	.06¼
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05¾	.06	.06		.06	
Grade B, 76-83.9, 375 e.p., rec. 85%	.05½		.05¼	.05½	.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05½		.05¼	.05½	.05⅝	.05¾
Grade C, 80-92, 375 e.p., rec. 78%	.05½		.05¼		.05½	

BURNING OIL

	June 17		June 10		June 3	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.03¾	.04	.03¾	.04¼	.03⅞	.04¼
42-44 water white kerosene	.04¼	.04½	.04¼	.04½	.04¼	.04½
NORTH TEXAS—						
41-43 water white kerosene	.03½	.04	.03⅝	.04	.03¾	.04
40-42 water white kerosene	.03½		.03½	.03¾	.03¾	
***NORTH LOUISIANA—**						
41-43 water white kerosene	.04½	.04¾	.04¾		.04¾	
***ARKANSAS—**						
41-43 water white kerosene	.04½	.04¾	.04¾	.05	.05	
PENNSYLVANIA—						
43 Kerosene prime white	.04¾	.05	.04¾	.05	.05¼	
45 Kerosene water white	.05	.05¼	.05	.05¼	.05½	
46 Kerosene water white	.05¼		.05¼		.05½	
47 Kerosene water white	.05½	.05¾	.05¾		.06	
300 Mineral Seal	.06½		.06½		.06¾	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04	.04½	.04	.04½	.04	.04½
Engine distillate, 43-44, 445 endpoint	.06	.06½	.06	.06½	.06	.06½
Engine distillate, 42-44, 480 endpoint	.05	.05½	.05	.05½	.05	.05½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.03¾	.04	.03⅞	.04¼	.04	.04¼
42-44 water white kerosene	.04	.04⅜	.04¼	.04½	.04½	
GULF COAST (Export)—						
41-43 prime white	.06		.06		.06	
41-43 water white	.07		.07		.07	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	June 17		June 10		June 3	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.50	.52½	.50	.55	.52½	.57½
18-22 Fuel Oil, per bbl.	.52½	.55	.52½	.55	.55	.60
20-22 Fuel Oil, per bbl.	.55	.60	.57½	.62½	.60	.65
22-26 Fuel Oil, per bbl.	.62½	.65	.65	.70	.65	.70
24-26 Fuel Oil, per bbl.	.65	.70	.70	.75	.70	.75
26-30 Fuel Oil, per bbl.	.75	.80	.80	.85	.80	.85
28-30 Fuel Oil, per bbl.	.82½	.87½	.85	.90	.85	.90
32-36 Gas Oil (industrial)	.02⅛	.02¼	.02⅛	.02¼	.02⅛	.02¼
32-36 Gas Oil (straw color)	.02¼	.02⅜	.02¼	.02½	.02¼	.02½
36-38 Distillate	.02¾	.03	.02¾	.03	.02¾	.03
38-40 Straw Distillate	.02⅞	.03	.03	.03⅛	.03	.03⅛
NORTH TEXAS—						
Below 20 Fuel Oil, per bbl.	.45	.55	.50	.55	.50	.55
24-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
32-36 Gas Oil (industrial)	.02	.02⅛	.02⅛	.02¼	.02⅛	.02¼
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.70	.75	.75	.80	.80	.90
30-32 Gas Oil	.02⅜	.02¾	.02¾	.03	.02¾	.03
***ARKANSAS—**						
33-36 Distillate	.02¾	.03	.02⅞	.03⅛	.02⅞	.03⅛
30-32 Gas Oil	.02⅝	.02¾	.02¾	.02⅞	.02¾	.02⅝
16-22 Refinery Fuel Oil, per bbl.	.65	.70	.70	.75	.80	.90
GULF COAST (South Texas)—						
Gas Oil	.03¾	.04	.03¾	.04	.03¾	.04
Bunker C Fuel (cargo lots), per bbl.	.80	.90	.80	.90	.80	.90
Bunker C Fuel (small lots)	1.05	1.10	1.05	1.10	1.05	1.10
PENNSYLVANIA—						
30-34 Fuel Oil	.03½	.03¾	.03⅞	.04	.03⅞	.04
36-40 Fuel Oil	.03¾	.04	.04	.04¼	.04	.04¼
CALIFORNIA—						
33-36 Distillate	.02½	.03	.02¼	.03	.02½	.03
26-32 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
15-20 Fuel Oil, Bunker (at tidewater)	.60	.65	.60	.65	.60	.65
15-20 Fuel Oil (cargo lots), per bbl.	.55	.65	.55	.65	.55	.65
27 plus Diesel, per bbl.	.80	.90	.80	.90	.80	.90
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.60	.65	.65	.70	.65	.70
18-22 Fuel Oil, per bbl.	.52½	.55	.55	.60	.55	.60
28-30 Fuel Oil, per bbl. (zero)	.85	.95	.87½	.95	.87½	.95
32-36 Gas Oil (zero)	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
32-36 Gas Oil (industrial)	.02⅛	.02¼	.02½	.02¾	.02½	.02¾
36-38 Distillate	.02⅝	.02¾	.02½	.02¾	.02½	.02¾
38-40 Straw Distillate	.02⅞	.03	.02¾	.03	.02¾	.03

*Louisiana, Arkansas, Mississippi and East Texas delivery.

LUBRICATING OIL AND WAX

	June 17		June 10		June 3	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.07	.06	.07	.06	.07
100 vis., 3 color, 20-25 cold test	.05½	.06	.05½	.06	.05½	.06
150 vis., 3 color, 20-25 cold test	.08½	.09	.08½	.09	.08½	.09
150 vis., 4 color, 20-25 cold test	.08	.08½	.08	.08½	.08	.08½
180 vis., 3 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
180 vis., 4 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
180 vis., 5 color, 23-28 cold test	.09	.09½	.09	.09½	.09	.09½
200 vis., 3 color, 23-28 cold test	.11½	.12	.11½	.12	.11½	.12
200 vis., 4 color, 23-28 cold test	.11	.11½	.11	.11½	.11	.11½
200 vis., 5 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
240 vis., 3 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
240 vis., 4 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
240 vis., 5 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
280 vis., 3 color, 25-30 cold test	.17½	.18	.17½	.18	.17½	.18
280 vis., 4 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
280 vis., 5 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
Cylinder Stocks:						
600, steam refined, light green	.10	.11	.09	.11	.09	.11
600, steam refined, dark green	.06	.08	.08	.10	.08	.10
190-200 vis., D color, Bright Stock	.41	.42	.41	.42	.41	.42
150-160 vis., D color, Bright Stock	.32		.37		.37	
*150-160 vis., D color, Bright Stock	.30	.32	.35	.36½	.35	.36½
150-160 vis., E color, Bright Stock	.29	.30	.32	.35	.32	.35
Waxes:						
124-126 White Crude Scale Wax	.02	.02⅛	.02	.02¼	.02⅛	.02⅜

*High cold test. All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.06¾	.07	.06¾	.07	.07	.07¼
34 Sundebloom	.07¼	.07½	.07¼	.07½	.07¾	
36 Miners' Neutral	.06¾	.07	.06¾	.07	.07½	
150, 3 color	.13½	.14	.14	.14½	.15	.16½
180, 3 color	.19	.20	.20	.20½	.20½	.21
200, 3 color	.22½	.23	.23½	.24	.25	.26
220, 3 color	.25	.26	.27	.28	.28	
600, steam refined	.15	.16	.18	.20	.20	.21
635, steam refined	.25	.26	.25	.28	.25	.28
650, steam refined	.27	.28	.27	.28	.28	
600, Pennsylvania Flash	.25	.26	.27	.28	.29	.31
630, Pennsylvania Flash	.30	.32	.33	.34	.34	.35
600, E filtered	.25	.26	.26	.27	.27	.28
600, D filtered	.28	.29	.33	.33½	.33	.33½
Pennsylvania Bright Stocks	.31	.32	.33	.35	.38	.38½
*122-124 White Crude Scale Wax	.02⅜		.02¾	.02½	.02½	
124-126 White Crude Scale Wax	.02½		.02⅝		.02⅝	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.06½	.06¾	.06½	.06¾	.06½	.06¾
200 vis., 3 color, pale oil	.09½		.09½		.09½	
300 vis., 3 color, pale oil	.10¾		.10¾		.10¾	
500 vis., 3½ color, pale oil	.12	.12¾	.12	.12¾	.12	.12¾
750 vis., 3½ color, pale oil	.13½		.13½		.13½	
1,200 vis., 3½ color, pale oil	.16		.16		.16	
2,000 vis., 4 color, pale oil	.17		.17		.17	

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

200 vis., 5-6 color, red oil	.08¾	.09	.08¾	.09	.08¾	.09
300 vis., 5-6 color, red oil	.10	.10¼	.10	.10¼	.10	.10¼
500 vis., 5-6 color, red oil	.11¼		.11¼		.11¼	
750 vis., 5-6 color, red oil	.12¾	.13	.12¾	.13	.12¾	.13
1,200 vis., 5-6 color, red oil	.15		.15		.15	
2,000 vis., 6 plus color, red oil	.17		.17		.17	
200 vis., 2½ color, filtered oil	.11	.12	.11	.12	.11	.12
300 vis., 2½ color, filtered oil	.12	.13	.12	.13	.12	.13
500 vis., 2½ color, filtered oil	.14½	.15	.14½	.15	.14½	.15
750 vis., 2½-3 color, filtered oil	.17	.19	.17	.19	.17	.19
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13½	.13	.13½	.13	.13½
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	June 17		June 10		June 3	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.09	.10	.09	.10	.09	.10
Kerosene, water white, 41-43	.07	.07¼	.07	.07¼	.07¼	.07¾
*Fuel Oil, Bunker "C," 41-43	1.15		1.15		1.15	
Fuel Oil, Diesel, 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.04¾	.05¼	.04¾	.05¼	.04¾	.05¼
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10½	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
285 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Refined Wax:						
120-122 a.m.p., per lb.	.03⅛		.03⅛		.03⅜	
125-127 a.m.p., per lb.	.03½		.03½		.03⅝	
130-132 a.m.p., per lb.	.04⅛		.04⅛		.04¼	
133-135 a.m.p., per lb.	.04⅝		.04⅝		.04¾	
135-137 a.m.p., per lb.	.04⅞		.04⅞		.05	
Petrolatum in barrels, in carload lots, per pound:						
Dark Green	.01¾		.01⅞		.01⅞	
Amber	.03¼		.03⅜		.03⅜	
Extra Amber	.03⅜		.03½		.03½	
Cream	.06⅛		.06⅜		.06⅜	
Lily White	.06¼		.06½		.06½	
Snow White	.08⅛		.08⅜		.08⅜	

*Lighterage 5.0 cents a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	June 17	June 10	June 3
Kerosene, prime white	.07¾	.07¾	.07¾
Kerosene, water white	.09	.09	.09
600, steam refined cylinder stocks, in bbls.	.27	.27	.29½
635, steam refined	.29	.29	.31½
650, steam refined	.33	.33	.35½
600, Pennsylvania Flash	.37	.37	.38½
630, Pennsylvania Flash	.40	.40	.41½
600, Warren E	.35	.35	.37½
600, Oil City E	.34	.34	.36½
Light 140-150 Bright Stocks	.45	.45	.47
Dark 140-150 Bright Stocks	.43	.43	.45

LOS ANGELES EXPORT PRICES

	June 17		June 10		June 3	
Kerosene, water white	.03¾	.04¼	.03¾	.04¼	.03¾	.04¼
*U. S. Motor Gasoline, 53-55, 437 e.p.	.06½	.06¾	.06½	.06¾	.06½	.06¾

*Prices on coastwise shipments.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Oklahoma City—Same as other Mid-Continent price schedule except Empire Pipe Line Co. posted all oil 40 gravity and above at $1.43 on April 10.

Corsicana heavy (April 10, 1930).....$ .80

Other fields.....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

In Noel-McConnell district Prairie Oil & Gas Co. posted April 10, below 30 degrees, 75½ cents, with 5-cent differential upward to 34-34.9, $1.00½, and then a 3-cent differential upward to 44 and above at $1.35½.

WEST TEXAS

Iatan*.....Same as North Texas

Crane-Upton-Crockett, Pecos, Winkler, Mitchell and Ector .....See gravity table, Column 3

Howard and Glasscock.....See gravity table, Column 9

Chalk† (April 10, 1930).....$ .75

*Includes Westbrook Field. †Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (April 11, 1930).....$ .90

Smackover, 24 gravity and above (April 11, 1930).....1.05

Carterville, Sarepta and Cotton Valley, below 36 gravity (April 11, 1930)... .85

Bellevue (April 11, 1930) 1.15

Urania (April 11, 1930) ..... .95

East El Dorado (April 11, 1930) ..... .90

Other fields.....See gravity table

Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado posted by Magnolia Petroleum Co.

GULF COAST

Grade A (April 10, 1930)* $1.15

Grade B, 25 degrees and upward .....See gravity table

Jennings, La. (April 10, 1930)†..... 1.10

Refugio (light) .....Same as Grade B

Refugio (heavy) (April 10, 1930)‖ .... .85

Sorrento (April 10, 1930)† 1.10

Markham (April 10, 1930)§..... .85

High Island (April 10, 1930)‖..... .95

*Humble Oil & Refining Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Pipe Line Co. ‖Posted by Gulf Pipe Line Co. ‖Humble Oil & Refining Co. and Gulf Coast Pipe Line Co.

(Continued on Page 150)

CRUDE OIL GRAVITY TABLE

Gravity—	1 Okla.-Kans.	2 N. C. Texas, No. La., Arkansas	3 Crane, Upton, Ector, Crockett, Winkler, Pecos, Mitchell (West Texas); Lea, N. Mex.	4 Wheeler County (Texas Panhandle)	5 Gray County (Texas Panhandle)	6 Carson and Hutchinson (Texas Panhandle)	7 Salt Creek, Wyo.	8 Stephens, Ark.	9 Howard-Glasscock (West Texas)	10 Grade B Gulf Coast and Refugio, Texas
Below 25	.75	.72	.65	....	....	....	....	....	.65	1.00
25 to 25.9	.80	.77	.68	....	....	....	....	....	.68	1.03
26 to 26.9	.85	.82	.71	....	....	....	....	....	.71	1.06
27 to 27.9	.90	.87	.74	....	....	....	....	.76	.74	1.09
28 to 28.9	.95	.93	.77	....	.75⅛	....	....	.81	.76	1.13
29 to 29.9	1.00	.97	.80	.75⅛	.80⅛	....	1.00	.86	.78	1.15
30 to 30.9	1.05	1.02	.83	.80⅛	.85⅛	....	1.05	.91	.80	1.18
31 to 31.9	1.10	1.07	.86	.85⅛	.90⅛	.77½	1.10	.96	.82	1.21
32 to 32.9	1.15	1.12	.89	.90⅛	.95⅛	.82⅛	1.15	1.01	.84	1.24
33 to 33.9	1.18⅛	1.17	.92	.95⅛	1.00⅛	.87½	1.18⅛	....	.86	1.27
34 to 34.9	1.22	1.22	.95	1.00⅛	1.05⅛	.92⅛	1.22	....	.88	1.30
35 to 35.9	1.25⅛	1.25⅛	.98	1.04	1.09	.96	1.25⅛	....	.90	1.33
36 to 36.9	1.29	1.29	1.01	1.07⅛	1.12⅛	.99⅛	1.29	....	.92	1.36
37 to 37.9	1.32⅛	1.32⅛	....	1.11	1.16	1.03	1.32⅛	....	....	1.39
38 to 38.9	1.36	1.36	....	1.14⅛	1.19⅛	1.06⅛	....	....	....	1.42
39 to 39.9	1.39⅛	1.39⅛	....	1.18	1.23	1.10	....	....	....	1.44
40 to 40.9	1.43	1.43	....	1.21⅛	1.26⅛	1.13⅛	....	....	....	1.48
41 to 41.9	1.46⅛	1.46⅛	....	1.25	1.30	1.17	....	....	....	1.48
42 to 42.9	1.50	1.50	....	1.28⅛	1.33⅛	1.20⅛	....	....	....	1.50
43 to 43.9	1.53⅛	1.53⅛	....	1.32	1.37	1.24	....	....	....	1.52
44 and above	1.57	1.57	....	1.35⅛	1.40⅛	1.27⅛	....	....	....	1.54

Column 1, Note—Above prices posted April 10, 1930, by Carter Oil Co. (beginning at 25 degrees and below), and by the Prairie Oil & Gas Co. and other purchasers beginning at 24 degrees and below, the Magnolia Petroleum alone excepted. The Magnolia on April 10 posted the following prices: Below 26 gravity, 70 cents 26-26.9, 76 cents; 27-27.9, 82 cents; 28-28.9, 88 cents; 29-29.9, 95 cents; 30-30.9, $1.02. From 31 up and including 44 degrees and above Magnolia followed Carter price schedule, but made its whole schedule apply to its gravity purchases in Kansas, Oklahoma and North Central Texas alike.

Column 2—Humble Oil & Refining Co. posted above prices April 10, 1930, and was followed by all other companies in Texas except Magnolia which posted a different price schedule than Humble up to 33.9 degrees (see note in paragraph just above). The Texas Company posted North Louisiana and Arkansas on April 10, and Standard of Louisiana posted on April 11 followed by other companies, but Magnolia's price schedule begins with below 28 gravity at 87 cents. North Central Texas includes North Texas, Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona, Moran, and Corsicana light; Arkansas and Louisiana pools include Caddo, Bull Bayou, Crichton, Cotton Valley, above 36 gravity, DeSoto, Haynesville, Homer, El Dorado and Rainbow.

Column 3—Posted by Humble Oil & Refining Co. April 10, 1930, and Magnolia Petroleum Co. April 10, 1930.

Column 4, 5 and 6—Humble Oil & Refining Co., Prairie Oil & Gas Co., Magnolia Petroleum Co., April 10, 1930.

Column 7—Mid-West Refining Co., April 11. All crude over 37 gravity $1.32½.

Column 8—Louisiana Oil & Refining Co., April 11.

Column 10—Humble Oil & Refining Co., April 10. Magnolia Petroleum Co. posted below 25 gravity 65 cents with 3-cent differential upward to and including 36 and above, which was posted at $1.01.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective March 11, 1930)

Gravity—	1 Seal Beach, Salt Lake, Newport, Summerland, Arundale, Los Angeles, Richfield, Olinda, Brea, Torrance, Alamitos Heights, Huntington Beach, Signal Hill, Inglewood	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs (June 14, 1930)	6 Santa Maria, Coalinga	7 Wheeler Ridge, Fruitvale	8 Orcutt, Ventura, Rincon	9 Ventura Avenue (Nov. 8)	10 Elwood Terrace	11 Athens, Rosecrans, Dominguez
14 to 14.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
15 to 15.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
16 to 16.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
17 to 17.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
18 to 18.9	.76	.76	.62	.71	....	.62	.62	.65	.76	....	....
19 to 19.9	.82	.82	.70	.77	....	.70	.70	.70	.82	....	....
20 to 20.9	.88	.87	.78	.83	....	.78	.78	.78	.88	....	....
21 to 21.9	.94	.93	.86	.90	.92	.86	.86	.90	.91	....	....
22 to 22.9	1.00	.98	.94	.97	.95	.94	.94	.95	.94	....	....
23 to 23.9	1.07	....	1.02	1.05	1.01	1.02	1.02	1.02	1.00	....	....
24 to 24.9	1.14	....	1.09	1.11	1.07	1.07	1.07	1.10	1.07	....	1.14
25 to 25.9	1.21	....	1.16	1.17	1.13	1.12	1.12	1.18	1.14	....	1.19
26 to 26.9	1.28	....	1.23	1.23	1.19	1.17	1.17	1.26	1.21	....	1.24
27 to 27.9	1.35	....	1.30	1.29	1.25	1.23	1.22	....	1.28	....	1.29
28 to 28.9	1.42	....	1.35	1.35	1.31	1.27	....	....	1.35	....	1.34
29 to 29.9	1.46	....	1.41	1.38	1.37	1.31	....	....	1.39	....	1.39
30 to 30.9	1.50	....	1.47	1.41	1.43	1.35	....	....	1.43	....	1.45
31 to 31.9	1.55	....	1.53	....	1.49	1.39	....	....	1.48	....	1.51
32 to 32.9	1.60	....	1.59	....	1.55	1.43	....	....	1.53	....	1.57
33 to 33.9	1.65	....	1.65	....	1.60	1.47	....	....	1.59	....	1.64
34 to 34.9	1.70	....	....	....	1.65	1.51	....	....	1.65	1.32	1.71
35 to 35.9	1.75	....	....	....	1.70	1.55	....	....	1.71	1.39	1.78
36 to 36.9	1.80	....	....	....	1.75	....	....	....	....	1.46	1.84
37 to 37.9	1.85	....	....	....	1.80	....	....	....	....	1.53	1.90
38 to 38.9	1.90	....	....	....	1.85	....	....	....	....	1.60	1.96
39 to 39.9	....	....	....	....	1.90	....	....	....	....	1.66	2.02
40 to 40.9	....	....	....	....	....	....	....	....	....	1.72	2.08
41 to 41.9	....	....	....	....	....	....	....	....	....	1.78	2.14
42 to 42.9	....	....	....	....	....	....	....	....	....	1.84	2.20

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain, 11 to 13.9 gravity, 50 cents; 14 gravity and above, 55 cents, effective March 11. On March 11, the Union Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 50 cents.

Column 1——Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 13.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 50 cents.

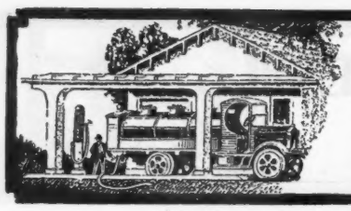
Column 5—Price change posted by Standard of California June 14.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9—Posted by Union Oil Co. only.

Column 10—Standard posted price f.o.b. tanker.

Kettleman Hills, 55 gravity and above, $1.65 (posted by Standard Oil Co. of California).



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns June 17

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Chicago†	18.0	19.0	3.0	13.0
Decatur, Ill.	18.2	19.2	3.0	13.1
E. St. Louis	17.4	18.4	3.0	12.2
Joliet	18.4	19.4	3.0	13.3
Peoria	18.2	19.2	3.0	13.1
Quincy	18.2	19.2	3.0	12.9
Davenport, Ia.	18.5	19.5	3.0	13.3
Des Moines	18.5	19.5	3.0	13.3
Keokuk	18.5	19.5	3.0	13.3
Sioux City	18.1	19.1	3.0	12.9
Duluth, Minn.	19.5	20.5	3.0	13.9
Mankato	19.1	20.1	3.0	13.7
Minneapolis	19.2	20.2	3.0	13.9
LaCrosse, Wis.	18.2	19.2	2.0	14.0
Milwaukee	17.1	18.1	2.0	12.9
Madison	17.3	18.3	2.0	13.1
Detroit, Mich.	18.8	19.8	3.0	14.7
Grand Rapids	18.7	19.7	3.0	14.6
Saginaw	18.9	19.9	3.0	14.8
Evansville, Ind.	19.0	20.0	4.0	14.0
Fort Wayne	19.4	20.4	4.0	14.4
Indianapolis	19.2	20.2	4.0	14.2
South Bend	19.4	20.4	4.0	14.4
Fargo, N. D.	20.9	21.9	3.0	15.9
Huron, S. D.	20.3	21.3	4.0	14.7
Sioux Falls	19.1	20.1	4.0	14.4
K. C., Mo.*	17.9	18.9	3.0	11.6
Springfield*	17.8	18.8	3.0	12.5
St. Louis*	16.9	17.9	2.5	12.3
St. Joseph	17.5	18.6	2.0	12.2
Wichita, Kans.	16.8	15.8	3.0	11.8
Bartlesville, Ok.	17.5	20.5	4.0	11.5

*State tax 2 cents; remainder city tax.
†Effective June 3, discounts on Q.D.A. in Chicago district 4 cents off service station price on purchases of 500 gallons or more per month and 5 cents on purchases of 1,000 gallons or more per month.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents; 75,000 gallons or more, 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	10.0
V. M. & P. naphtha	16.7	12.0
Cleaner's naphtha	17.0	14.9
Stanisol	17.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 349 gallons	8.0
350 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Dallas, Tex.	14.0	18.0	4.0	12.0
Fort Worth	14.0	17.0	4.0	11.0
Houston	15.0	19.0	4.0	11.0
San Antonio	14.0	18.0	4.0	11.0
El Paso	16.0	20.0	4.0	13.0
Texarkana	14.0	15.0	4.0	12.0
Muskogee*	16.0	19.0	4.0	9.0
Okla. City*	15.0	18.0	4.0	10.0
Tulsa*	16.0	20.0	4.0	10.0
Ft. Smith, Ark.	17.0	18.0	5.0	12.0
Little Rock	18.0	19.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Denver, Colo.	16.0	19.0	4.0	15.5
Pueblo	18.0	21.0	4.0	15.5
Grand Junction	23.0	26.0	4.0	19.0
Casper, Wyo.	19.0	22.0	4.0	14.0
Cheyenne	20.5	23.5	4.0	15.5
Butte, Mont.	24.5	27.5	5.0	20.0
Helena	24.5	27.5	5.0	20.0
Salt Lake, Utah	20.0	23.0	3.5	17.0
Albu'que, N. M.	21.0	24.0	5.0	15.0
Boise, Idaho	23.5	26.5	5.0	19.0
Twin Falls	23.5	27.5	5.0	19.0

PENNSYLVANIA—DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Pittsburgh, Pa.	16.0	*22.0	...	13.0
Philadelphia	16.0	*22.0	...	13.0
Scranton	16.0	*22.0	...	13.0
Allentown	16.0	*22.0	...	13.0
Altoona	16.0	*22.0	...	13.0
Erie	15.0	*19.0	...	13.0
Dover, Del.	19.0	21.0	3.0	13.0
Wilmington	19.0	21.0	3.0	13.0
Springf'd, Mass.	17.5	19.5	2.0	12.5
Worcester	17.3	19.3	2.0	12.3
Boston	16.5	18.5	2.0	11.5
Providence, R.I.	16.7	18.7	2.0	11.7
Hartford, Conn.	17.5	19.5	2.0	12.5
New Haven	17.6	19.6	2.0	12.6

*Includes tax of 4 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Albany, N. Y.	17.6	19.6	2.0	15.6
New York*	16.3	18.3	2.0	14.3
Buffalo	17.8	19.8	2.0	14.8
Rochester	18.0	20.0	2.0	14.0
Syracuse	18.8	20.8	2.0	14.8
Boston, Mass.	16.5	18.5	2.0	13.5
Augusta, Me.	19.8	21.8	4.0	14.8
Manch't'r, N. H.	19.4	21.4	4.0	14.0
Burlington, Vt.	19.6	21.6	4.0	15.3

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atlanta, Ga.	21.0	23.0	6.0	15.6
Augusta	20.0	22.0	6.0	15.5
Macon	22.0	24.0	6.0	14.0
Savannah	21.0	23.0	6.0	14.0
Birm'ham, Ala.	20.0	22.0	5.0	14.5
Mobile	18.0	18.0	4.0	13.5
Montgomery	21.0	23.0	4.0	15.0
Clarks'le, Miss.	19.0	21.0	5.0	12.5
Jackson	20.0	22.0	5.0	13.0
Natchez	19.5	21.5	5.0	13.0
Gulfport	21.0	23.5	5.0	13.0
Vicksburg	19.5	21.5	5.0	13.0
Jack'ville, Fla.	21.0	23.0	6.0	14.0
Miami	22.0	24.0	6.0	14.0
Pensacola	19.0	21.0	6.0	13.5
Tampa	21.0	23.0	5.0	13.0
Lexington, Ky.	19.0	20.0	5.0	14.5
Covington	21.0	22.0	5.0	14.5
Louisville	20.0	22.0	5.0	13.0
Ashland	19.0	21.0	5.0	15.0
Catlettsburg	20.0	21.0	5.0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Birmingham and Mobile state taxes add 1-cent city levy. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atlantic City	16.5	18.5	2.0	13.5
Newark, N. J.	15.5	17.5	2.0	12.5
Annapolis, Md.	18.0	20.0	4.0	13.0
Baltimore	17.2	19.2	4.0	10.5
Cumberland	19.0	21.0	4.0	14.0
Washington	15.7	17.7	2.0	12.7
Danville, Va.	19.8	21.8	5.0	13.8
Norfolk	18.3	20.3	5.0	12.0
Petersburg	19.3	21.3	5.0	13.3
Roanoke	20.0	21.0	5.0	14.0
Richmond	18.7	20.7	5.0	12.7
Charles'n, W.Va.	18.5	20.5	4.0	12.5
Keyser	19.1	21.1	4.0	14.1
Parkersburg	17.2	19.2	4.0	11.2
Wheeling	18.4	20.4	4.0	12.4
Charlotte, N. C.	20.3	22.3	5.0	14.3
Hickory	20.8	22.8	5.0	14.8
Mt. Airy	20.5	22.5	5.0	14.5
Salisbury	20.7	22.7	5.0	14.7
Charleston, S.C.	19.3	21.3	6.0	12.3
Columbia	21.2	23.2	6.0	14.2

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
San Francisco	19.0	20.0	3.0	15.5
Los Angeles	18.5	19.5	3.0	15.5
Reno, Nev.	24.0	25.0	4.0	19.0
Portland, Ore.	20.5	20.5	4.0	16.5
Seattle, Wash.	19.5	19.5	3.0	16.5
Tacoma	19.5	20.5	3.0	16.5
Spokane	23.5	23.5	3.0	20.5
Phoenix, Ariz.	14.0	20.0	4.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where discount is 1 cent.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Omaha	19.25	21.25	4.0	13.25
McCook	19.75	22.75	4.0	14.75
Norfolk	19.75	21.75	4.0	13.75
N. Platte	20.75	22.75	4.0	14.50
Scottsbluff	20.75	22.75	4.0	14 25

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Ohio points*	20.0	21.0	4.0	†14.0

*Dealers and commercial accounts 2 cents under tank wagon.
†Service station price 16 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
N. Orleans, La.*	16.0	16.0	5.0	12.0
Baton Rouge	16.0	17.0	4.0	14.0
Alexandria	17.0	17.0	4.0	14.0
Lafayette*	18.0	18.0	5.0	14.0
Lake Charles*	16.0	16.0	5.0	14.0
Shreveport	14.0	18.0	4.0	14.0
Knoxv'le, Tenn.	20.0	20.0	5.0	16 0
Memphis	18.0	20.0	5.0	12.5
Chattanooga	20.0	22.0	5.0	16.0
Nashville	19.0	21.0	5.0	16.0
Bristol	20.0	22.0	5.0	14 0
Lt. Rock, Ark.	18.0	19.0	5.0	13.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

TANK WAGON CHANGES

Standard Oil Co. of Kentucky effective April 30 advanced gasoline tank wagon and service station prices 1 cent at Covington, Ky.

Continental Oil Co. effective May 31 reduced gasoline tank wagon and service station prices 1 cent at Denver, Colo.

Magnolia Petroleum Co. effective June 3 reduced gasoline tank wagon and service station prices 2 cents at Fort Worth, Tex., with 1 cent reduction at San Antonio. Same company reduced gasoline tank wagon and service station price 1 cent at Oklahoma City, Okla., effective June 2.

Standard Oil Co. of Louisiana effective June 9 reduced the gasoline service

(Continued on Page 156)

CRUDE OIL CHANGES

On June 14 the Standard Oil Co. of California and the Union Oil Co. resumed their price schedule in Santa Fe Springs that prevailed previous to May 17. This action amounted to an increase in price ranging from 75 to 90 cents per barrel.

On June 17 the Seep Purchasing Agency and the Tide Water Pipe Co. reduced prices on Pennsylvania grade crude oils, the reductions ranging from 5 cents to 15 cents per barrel.

CRUDE OIL PRICES

(Continued from Page 149)

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective April 11, 1930)

Hex (Feb. 15, 1930):	
33 gravity and above	$ .87
Under 33 gravity	.65
Dutton Creek (Feb. 15, 1930)	1.25
Rock Creek, Wyo.	1.35
Salt Creek	See gravity table
Big Muddy	1.38
Grass Creek, heavy (July 27, 1928)	.90
Grass Creek, light	1.55
Mule Creek (May 21, 1929)	1.20
Elk Basin	1.55
Lance Creek	1.62
Poison Spider (March 14, 1927)	1.00
Notches (March 14, 1927)	.65
Rex Lake (February 22)	1.10
Osage	1.62
Lost Soldier (contract, May 22)	1.05
Hamilton Dome (March 14, 1927)	.85
Greybull (February 15, 1930)	1.45
Four Bear (May 21, 1929)	.85
Cat Creek	1.55
Pondera (Montana) (Feb. 15, 1930)	1.80
Sunburst (Montana) (Feb. 15, 1930)	1.65
Torchlight (May 21, 1929)	1.65
Hogback (Feb. 15, 1930)	1.40
Artesia (New Mexico)	1.05
Lea County	See gravity table

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (April 10, 1930)*	$1.15
Luling (April 10, 1930)	.85
Mirando (April 10, 1930)†	.85
Pettus (April 10, 1930)§	1.40
Salt Flat (April 10, 1930)§	1.15
Thrall‡	
Lytton Springs (Lockhart)	See gravity table
Somerset (April 10, 1930):	
Below 33 gravity	$1.15
33 to 33.9 gravity	1.17
34 to 34.9 gravity	1.19
35 to 35.9 gravity	1.21
36 to 36.9 gravity	1.23
37 to 37.9 gravity	1.25
38 gravity and above	1.27

*Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight. §Humble Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective June 17, 1930)

Seep Purchasing Agency withdrew from Bradford and Allegany Fields as a purchaser on May 16.

Penna Grade Oil in National Transit Lines (Pennsylvania)	$2.20
Penna Grade Oil in Southwest Pennsylvania Lines (Pennsylvania)	2.15
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia)	2.05
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	1.90
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 22, 1929)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (Feb. 17, 1930)	1.75
Somerset Oil in Eureka Pipe Line Lines (Kentucky) (April 11, 1930)	1.31
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (April 11, 1930)	1.47
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60
Wayne District Oil in Cumberland Pipe Lines (April 11, 1930)	1.34

Tide Water Pipe Co.

Bradford district (June 17)	$2.25
Allegany district (June 17)	2.25

Pure Oil Co.

Cabin Creek, W. Va. (June 17)	$2.30
Kelly Creek, W. Va. (June 17)	2.15
Bradford Hollow (June 17)	2.15

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective April 11, 1930)

Lima	$1.70
Wooster	1.80
Illinois	1.65
Indiana	1.47
Princeton	1.65
Plymouth	1.23
Waterloo (Nov. 17, 1926)	1.35
Western Kentucky	1.55
Midland, Mich.* (June 5)	1.55
Dundee, Mich. (April 16)‖	
Same as Mid-Continent gravity scale	
Upper and Lower Traverse sands, Mich. (April 16)‖	
Same as Mid-Continent gravity scale	
Saginaw, Mich. (April 11)†	
Same as Mid-Continent gravity scale	
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 15)‡	1.50
Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (April 18)§	1.45
Oil Springs (Canada) (April 11, 1930)¶	2.17
Petrolia (Canada) (April 11, 1930)¶	2.10

*Posted by Pure Co. †Posted by Sun Oil Co. ‡Posted by Paragon Development Co. §Posted by Stoll Oil Refining Co. ¶Posted by Imperial Oil Co., Ltd. ‖Posted by Standard of Indiana for boat shipment. Local Refiners posted Mid-Continent prices on April 11.

MEXICAN CRUDE

Panuco*	$ .60

*F.o.b. ship, based on May transactions.

Here's the new way to sell gasoline . . . the *sure way* to increase your gallonage . . .

SINCLAIR THREE-GAS SERVICE

Today, with so many different engines on the road and so many different motoring conditions everywhere, no one kind of gasoline can be best for all engines. Today, it takes three different *kinds* to meet all demands—and you can satisfy these three demands with Sinclair Three Gas Service.

Here are the three kinds of gasolines for all the different motoring needs.

For the motorist who wants quick starting, zooming acceleration, flashy stop-and-go action in traffic, with brilliant performance along the highway, here's Sinclair Aircraft Gasoline, the *Ace* of high test gasolines. Sinclair Aircraft is the Ace of high test gasolines because it is specially manufactured at Sinclair Refineries, meeting the requirements of the Federal Specifications Board for Aviation Gasoline—domestic grade—and gives sustained power. Due to its careful fractionation it is free from dissolved gases which cause gas locks, uneven distribution, galloping and engine balk.

Or if a customer wants high-compression performance, who wants to stop knocks and take the hills in high—without a complaint from the engine, here's H-C Gasoline, *all* gasoline—nothing added.

And if he prefers to pay three cents less per gallon, here's Sinclair Regular Gasoline full of eager power—full, too, of economy and mileage. The quality gasoline at a popular price.

They're *all* gasoline—nothing added—and they are three remarkable fuels! Let your customers *select* their gasoline from Sinclair Three-Gas Service—you'll get their business and keep it!

SINCLAIR REFINING COMPANY, INC.
45 Nassau Street, New York
Atlanta, Chicago, Houston, Kansas City

Pan American Reports Earnings Gain

President Seubert Says With Development Program Under Way Dividend Declaration Is Problematical at This Time

E. G. Seubert, president of Standard Oil Co. of Indiana, which now holds 82 per cent of the total outstanding stock of Pan American Petroleum & Transport Co., stated at the annual meeting of the latter company that in the first four months of this year earnings of Pan American indicated a substantial increase over 1929. When asked concerning the probability of the resumption of dividends of Pan American, Mr. Seubert declared:

"It is problematical when we will pay dividends. We have an expansion and development program under way which must be provided for. Just as soon as it is consistent with good business and good management, the directors will give serious consideration to a dividend policy."

T. S. Cooke, William Green, P. H. Harwood, Allan Jackson and Harold Walker, whose terms expired, were re-elected directors for three years. There were represented at the meeting 936,909 shares of common stock, the only issue entitled to vote, out of a total of 999,958 shares outstanding at the end of last year. The Indiana company holds 94 per cent of the common stock and 76 per cent of the Class B common, both of $50 par value.

Employes' Plan

P. H. Harwood, a vice president of Pan American, was chairman of the meeting in the absence, due to illness, of R. G. Stewart, president. Mr. Seubert acted as spokesman for the Standard Oil Co. of Indiana and also explained the provisions of a stock subscription plan for the Pan American employes.

This plan, which provides for purchase of Standard Oil Co. of Indiana capital stock by Pan American employes on a basis similar to that now applying to the Indiana company and its subsidiaries, aroused some minority opposition, although it was finally adopted. The plan, which becomes effective in the Pan American organization July 1, permits an employe to subscribe two-thirds of the price of the stock, initially $53 a share, the other third being paid by the Pan American company.

Opposition to the plan was on the basis that shares of Pan American Petroleum & Transport Co. should be offered employes of that company, rather than stock of the Indiana company. Mr. Seubert declared, however, that "the majority interest in the Pan American Petroleum & Transport Co. feel that it is good business not to create another stock plan within a subsidiary." Mr. Harwood also spoke for adoption of the plan, declaring that it was the only practical one.

Answering a stockholder, Mr. Seubert stated that the Indiana company, like other stockholders of Pan American, had received nothing so far on its investment in that company. He declined to say definitely whether a new offer would be made for the minority interest in Pan American, declaring that it was questionable and a matter for the directors of the Indiana company to decide.

Inter-Company Relations

A stockholder raised the question of what contracts exist between the two companies. To this Mr. Seubert replied:

"We have no contracts with the Pan American and its associated companies for crude oil, except oil that we are buying in Winkler County, West Texas, for which we are paying Southern Crude Oil Purchasing Co., a subsidiary of Pan American, the full market prices.

"I think there is some relationship between the Pan American and the Indiana sales departments. We buy some lubricating oil and special oils from Pan American on a competitive price basis. We sell Pan American refined oils for delivery in the southern part of the United States, also on a competitive price basis.

"In addition we have a management contract to operate the Pan American refineries. When the Pan American company desired to expand its refineries in a modern way it had no refinery department to manage the proposition. It called upon the Indiana company for experienced refinery men not only to operate but to design and build a modern type refinery at Aruba, Dutch West Indies. For its services the Indiana company is paid an operating fee, which is a just and fair one.

"We have given the Pan American at

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended June 11 Sales	Week ended June 11 High	Week ended June 11 Low	Week ended June 11 Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
31¼	18	8,000	27⅞	24¼	25	Amerada Corp.		$57,260,300	$25	50cQ	12-31-29	50¼	35	53⅜	37½	47¼	34½
37	20½	600	23	21¼	21¼	American Republic Corp.	(sh)	209,180	N.P.	.....	3-20-29	82½	35⅛	85	51⅛	64¾	12½
51	32½	30	51	51	51	Associated Oil		$66,763,775	$25	25cQ	12-16-29	131⅜	104	66⅜	50	77⅞	30
51⅜	36¼	8,700	39⅞	37⅝	37¾	Atlantic Refining		$56,546,600	$25	50cQ	12- 7-29	35½	20¾	53	20	49⅛	20
34	20⅛	14,400	25¼	22⅝	22¾	Barnsdall Corp.	(sh)	4,741,554	N.P.	.....	3-31-27	..	..	..	..	47⅛	18
30½	19½	14,200	24¾	22½	23	Continental Oil of Delaware	(sh)	413,333	N.P.	50cQ	.....	96¾	65	94⅞	68	94¾	42¼
71⅛	49⅜	2,000	54⅝	52⅜	52⅜	General Asphalt		$24,968,600	$100	.....	.....	175¾	60⅛	167	79	109	26
116⅞	52¼	38,800	99¼	86	91¾	Houston Oil	(sh)	1,362,295	N.P.	50cQ	1-31-30	32¾	17⅝	38⅜	21¾	39⅜	17¾
32	20¼	3,700	24⅛	23	23	Independent Oil & Gas		$12,565,070	$10	.....	5-31-24	12⅛	7⅝	39⅝	9	53	13⅛
28⅜	13⅛	14,600	15½	13½	14	Indian Refining	(sh)	3,992,122	N.P.	.....	5- 1-27	37¾	20½	39⅛	27⅜	38⅜	16½
26½	21¼	800	23⅛	23	23⅛	Lago Oil & Transport	(sh)	1,190,063	N.P.	.....	.....	18⅛	10	19¾	9⅜	18	7
12	8	10,900	8⅞	8½	8½	Louisiana Oil Refining	(sh)	330,000	N.P.	.....	.....	22¾	12	25½	12½	18½	5⅛
10⅜	5⅛	300	6⅜	6¼	6¼	Maracaibo Oil	(sh)	1,244,383	N.P.	.....	12-15-20	9¼	3	72	4⅝	69⅜	9¼
37	16½	33,200	26½	23⅛	24¾	Mexican Seaboard	(sh)	1,857,912	N.P.	50cQ	12-15-29	39⅜	25½	44½	25⅛	39⅞	22⅛
33	23½	4,900	27⅛	25¾	26	Mid-Continent Petroleum		$23,736,130	$10	.....	7- 1-23	3¾	1⅝	7⅜	2⅜	5⅛	¾
2½	⅞	200	1¼	1¼	1¼	Middle States, ctfs.		$50,084,700	$50	.....	10-20-27	65⅞	40⅛	54⅞	38¼	69	40½
64¼	51⅝	400	59	57¼	59	Pan American P. & T.		$121,110,650	$50	.....	11-15-24	66⅜	40¼	58⅞	37¾	69¼	40½
67½	50½	5,400	59½	57¼	57⅞	Pan American P. & T. "B"		$400,000	N.P.	.....	1-30-27	37⅞	16¾	28⅜	15½	18½	13⅜
..	..	No sales.				Pan American Western B	(sh)	199,370	N.P.	.....	.....	18⅞	8	21¾	11½	15¼	3
12¾	4⅛	2,000	8¾	7½	7½	Panhandle P. & R.		$2,564,400	$100	....	7- 2-23	83	54	108	70	76	47½
80	47½	100	80	80	80	Panhandle P. & R. pfd.	(sh)	2,593,075	N.P.	50cQ	1- 2-30	60¼	36¼	53⅞	35¼	47	24¼
44¾	29⅛	156,000	34⅞	32¾	33½	Phillips Petroleum		.....	....	.....	.....	..	..	..	..	..	..
1⅞	1¼	195,200	⅝	¼	⅝	Phillips Petroleum rts		$29,622,831	$25	.....	.....	1⅛	½	5¼	½	3⅜	1
2½	1	1,500	1½	1½	1½	Pierce Oil Corp.	(sh)	2,500,000	N.P.	.....	.....	5½	2½	7	3½	5⅞	½
7⅛	2¼	1,900	5¾	5½	5⅝	Pierce Petroleum		$60,848,000	$25	50cQ*	12-31-29	55½	45⅝	68	46	65⅝	40½
54	40	2,800	43	40	41⅝	Prairie Oil & Gas		$101,250,000	$25	75cQ†	12-31-29	190	130¾	280	172	65	45
60	44⅛	6,400	46⅞	44⅛	44⅜	Prairie Pipe Line		$37,438,950	$50	.....	9-15-23	33⅞	16¾	29⅞	16	25⅞	4
11⅞	6½	1,200	8⅝	8⅛	8⅛	Producers & Refiners		$2,845,350	$50	.....	5- 1-25	50	36⅞	49⅝	41	46¾	25½
40	31	30	34	34	34	Producers & Refiners pfd.		$75,959,250	$25	37½cQ	12- 2-29	33½	25	31⅝	19	30¾	20
27¼	21⅛	12,000	22½	21⅛	21½	Pure Oil		$52,410,875	$25	50cQ	11-15-29	28⅝	25⅜	56	23	49⅝	20
28¼	17½	6,100	19¾	18⅝	19½	Richfield Oil	(sh)	1,236,270	N.P.	$2A	7-25-29	..	..	37½	32	42½	15
25¾	16½	3,300	20⅜	19⅛	19⅛	Rio Grande Oil	(sh)	611,303	$1.873	.....	9-13-29	54½	44¼	64	44⅝	64	43⅛
56½	49¼	2,700	52½	51⅜	51½	Royal Dutch, N. Y.		£23,985,000	£1	$1.45	7-23-29	48⅝	40½	47⅞	41⅜	57½	40⅝
48⅜	42⅜	20	45	45	45	Shell Transport & Trading Co.	(sh)	13,066,497	N.P.	35cQ	12-31-29	31¾	23⅝	39¼	23¼	31¾	19
25½	19⅞	3,900	20¼	19⅞	19⅞	Shell Union Oil		$8,353,620	$10	40cQ	12-14-29	25⅜	14¼	27¼	18⅛	40⅛	15
37	21½	2,100	24⅜	21¾	21¾	Simms Petroleum	(sh)	5,500,000	N.P.	50cQ	1-15-30	22⅜	15	46⅝	17⅜	45	21
32	21⅝	23,600	26¾	25⅛	25½	Sinclair Consolidated		$16,025,250	$100	$2Q	11-15-29	104½	97	110	102½	111	103
112¼	108	700	108	108	108	Sinclair Consolidated pfd.		$27,441,250	$25	50cQ	12-16-29	37⅜	24⅛	42⅝	25	40½	28
42	28⅞	4,300	33⅝	32⅝	32⅞	Skelly Oil	(sh)	12,594,098	N.P.	62½cQ	2-15-30	60¾	50⅜	80	63	81⅞	51½
75	55½	21,900	67	63½	64¼	Standard of California		$8,000,000	$25	50cQ	12-16-29	20⅞	14⅝	37⅜	15	33⅜	18
49	35⅜	1,800	37⅜	35⅜	35⅜	Standard Oil of Kansas		$634,999,200	$25	25cQ*	12-16-29	41⅜	35⅛	59⅜	37⅜	83	49
84⅞	58	147,300	75¼	70¼	71⅝	Standard Oil of New Jersey		$445,223,675	$25	40cQ	12-16-29	34⅛	29¾	44¼	28¾	48⅛	31¾
40⅜	31¼	1,300	34⅝	33	33½	Standard Oil of New York	(sh)	1,416,869	N.P.	25cQ	12-16-29	34⅞	30	77	31½	86⅜	55
70	53	500	62¼	60⅝	60⅝	Sun Oil	(sh)	776,979	N.P.	.....	12-20-20	..	..	..	..	24	5¼
9⅜	5¼	4,400	6⅜	5⅞	5⅞	Superior Oil Corp.		$246,204,900	$25	75cQ	1- 1-30	58	45	74⅜	50	71⅞	50
60⅛	50⅞	10,400	55¼	53	53½	The Texas Corporation		$9,304,890	$10	2½%A‡	12-31-29	18⅞	12	26⅝	12⅛	23⅞	9½
14½	8⅞	7,600	10	9¾	9¾	Texas Pacific Coal & Oil Co.	(sh)	2,191,759	N.P.	20cQ	12-31-29	29⅛	19	41½	19⅝	40	14
31	19½	200	30¾	28¾	30¾	Tide Water Oil		$19,947,000	$100	$1.25Q	11-15-29	90½	85	100⅛	86	97½	85⅛
94⅞	86⅛	100	92½	92½	92½	Tide Water 5½% pfd.	(sh)	5,560,424	N.P.	30c8	2-15-30	19⅛	15¾	25	14¾	23½	10
17¾	10¾	15,100	16⅛	15¼	15¼	Tide Water Associated		$73,284,500	....	$1.50Q	2- 2-30	..	..	..	..	90⅞	74⅛
89¾	78	200	87½	87½	87½	Tide Water Associated pfd.	(sh)	3,742,029	N.P.	.....	.....	10⅜	3¾	14¾	7¼	15¼	5⅛
24	16¼	17,400	19⅝	18	18⅞	Transcontinental Oil		$104,342,375	$25	50cQ	11- 9-29	56½	39⅝	58	42⅜	57	42⅛
50	41⅛	1,300	43½	42½	42¾	Union Oil of California	(sh)	1,254,048	$100	$1.25Q	12- 2-29	127½	94	128⅛	110	163¾	121⅞
38½	31	500	32½	31⅝	32½	Union Tank Car	(sh)	632,948	N.P.	50cQ	1- 2-30	34½	24½	44⅞	26	42⅞	15
27	15⅜	4,100	16	15½	15½	Warner-Quinlan	(sh)	505,100	N.P.	50cQ	1- 20-30	27½	20	38	20⅛	38	25
..	..	No sales.				White Eagle Oil & Refining	(sh)	428,907	N.P.	.....	5-10-28	..	..	..	..	29¾	12⅞
21	11½	200	17¾	17¾	17¾	Wilcox Oil & Gas											

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock.

In comparing highs and lows for the several years in the three tables it will be necessary to take into consideration cases where there have been splits in the stock.

Aruba advantages in the respect of most modern patents at substantially reduced royalty."

It was brought out that the total cost of the Aruba refinery installation was between $15,000,000 and $20,000,000. It was not until February 1 this year that all units of the plant were in service and the plant was in full operation. The new asphalt plant at Savannah, Ga., has started operations.

At the last annual meeting it was suggested that the company render quarterly financial statements. This was taken into consideration by the executive committee and directors, and it finally was decided that, due to fluctuations in the business, the company would continue to make a semiannual statement. The report for the half-year ending June 30 will be issued about the first of September.

For six months ended June 30, 1929, Pan American Petroleum & Transport Co. and subsidiaries, including the Lago companies, reported profit of $3,985,719 after depreciation, depletion, amortization and intangible development costs, but before federal taxes, comparing with $5,209,841 in first half of 1928. For the full year 1929 net profit was $9,825,992 after all deductions, including federal taxes, equal to $2.92 a share on 3,360,698 shares of combined common and common B, against $10,071,576 or $3 a share on 3,360,649 shares in 1928.

Shreveport-El Dorado Pipe Line

Shreveport-El Dorado Pipe Line Co., Inc. has called for redemption July 1 all of its outstanding first mortgage 6 per cent sinking fund bonds, due January 1, 1933, at 102 and interest.

United Light & Power

United Light & Power Co. declared the regular quarterly dividends of 25 cents on the new Class A and Class B common and $1.25 on the old Class A and Class B common, all payable August 1 to stock of record July 15; and $1.50 on the $6 first preferred, payable July 1 to stock of record June 16.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

Jan. 8	48.56	Mar. 26	51.55
Jan. 15	47.13	Apr. 2	53.26
Jan. 22	47.13	Apr. 9	53.04
Jan. 29	47.46	Apr. 16	53.39
Feb. 5	48.13	Apr. 23	53.70
Feb. 12	47.49	Apr. 30	50.23
Feb. 19	45.85	May 7	51.67
Feb. 26	46.71	May 14	49.71
Mar. 5	46.79	May 21	50.98
Mar. 12	48.30	May 28	50.94
Mar. 19	51.00	June 4	46.65

Shell Transport & Trading

Net profit of Shell Transport & Trading Co., Ltd. for year ended December 31, 1929, was £6,483,386 after expenses

(Continued on Page 156)

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended June 11 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
⅜	⅛	500	⅛	⅛	⅛	Amer. Con. Oilfields		$11,018,000	$5	.....	.....	2 7/8	.55	1½	.53	72c	⅛
4½	1½	5,500	3⅛	2⅞	3⅛	Amer. Maracaibo	(sh)	700,000	N.P.	.....	.....	7½	2¾	9½	3½	8⅝	1⅝
1⅜	1	200	1¼	1¼	1¼	Argo Oil	(sh)	683,971	$10	.....	.....	2¾	1	4½	2¼	5	1½
21	20¼	300	20¼	20¼	20¼	British American (new, C.W.I.)		$1,311,321	N.P.	25cQ*	1- 2-30	40	20½	55	32¾	62	7⅞
2¾	¾	500	1⅝	1½	1½	Carib. Syndicate		$131,250	25c	.....	.....	28¼	15½	4½	3⅞	4⅞	1
44⅛	26½	62,400	30⅞	29¾	30¼	Cities Service	(sh)	24,290,359	N.P.	30cA†	1- 2-30	58¾	40¼	90⅞	54	68⅛	20
93⅞	88	200	91¾	91⅝	91⅝	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	1- 2-30	95⅜	87	103½	94½	98¾	84
1¼	⅛	330,100	¼	⅛	¼	Cities Service, rts.		.....	....	.....	.....	..	..	..	..	..	..
¾	¼	1,000	⅜	⅜	⅜	Columbia Syndicate		$2,000,000	$1	.....	.....	3⅞	1⅛	3¼	.76	2	½
5⅞	3⅞	200	4¼	3⅞	3⅞	Cons. Royalty		$5,000,000	$10	15cQ	10-25-29	9¾	6⅜	8⅞	6¼	11⅛	2½
7⅜	5⅞	2,300	7⅛	6½	7⅛	Creole Petroleum E	(sh)	5,977,873	N.P.	.....	.....	14⅞	9½	17½	9½	11¾	5⅝
1	¼	1,500	½	½	½	Crown Central	(sh)	587,000	N.P.	.....	.....	3	.50	3¼	.76	2½	¼
12⅞	7¼	200	8½	7¾	7¾	Darby Petroleum	(sh)	1,019,392	N.P.	25cQ	1-15-30	12	4	33½	3¼	26	6½
11	4½	500	7½	7½	7½	Derby Oil & Refining	(sh)	500,000	N.P.	.....	.....	2½	74	2¼	1	11	2
60	30	200	54	53	53	Derby Oil & Refining pfd		$48,500	N.P.	.....	.....	16¾	4	21½	7½	44	20¾
166¾	131¼	8,700	144	136	137½	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	1- 1-30	118	86¼	165	101⅛	209	115
1¾	¾	2,600	1⅛	1	1⅛	Intercontinental Pet.		$5,682,000	$5	.....	.....	2½	.80	3⅜	1	2⅞	⅜
3	1⅞	700	2	2	2	Kirby Petroleum	(sh)	750,000	N.P.	.....	.....	2¼	1⅛	3	1¼	3⅝	1¼
4⅜	1⅛	400	2	1⅞	2	Leonard Oil & Dev.		$50,000,000	$25	.....	.....	10⅞	5⅛	9⅜	5⅛	6⅛	1
29	18⅝	200	25	23½	25	Lion Oil & Refining	(sh)	250,000	N.P.	50cQ	1-31-30	27½	20	43⅞	20	38⅞	18
55⅞	44	700	47	44	45	Lone Star Gas	(sh)	5,000,000	N.P.	20cQ	12-31-29	59⅜	37	69⅛	48½	67⅞	28
4½	3	3,700	4	3⅝	3⅝	Lone Star Gas rts.		.....	....	.....	.....	..	..	..	..	..	..
½	¼	200	¼	¼	¼	Magdalena Syndicate	(sh)	850,000	$1	.....	.....	2⅞	.80	1⅞	.50	1¼	¼
16	12	100	12½	12½	12½	Margay Oils		$160,000	N.P.	50cQ	1-10-30	52	12	48½	32	38½	14
7½	2	100	3⅜	3⅜	3⅜	Mexico-Ohio Oil		.....	....	.....	.....	12⅛	5	8	2¾	6⅜	2½
¾	⅜	100	½	½	½	Mountain & Gulf		$4,000,000	$1	2cQ	1-15-30	1½	1	1¾	.76	1½	¼
12⅛	8	200	10	9¾	10	Mountain Producers		$1,682,182	$10	40cQ	1- 2-30	29¼	22¾	28⅞	19½	22⅞	7
3½	2⅜	300	2¾	2⅝	2⅝	New Bradford Oil		$1,095,291	$5	12½cQ	1-15-30	5⅞	4⅝	5⅝	4¼	5	2¼
7¼	3½	400	4⅝	4¼	4¼	New Mex. & Arizona		$1,000,000	$1	.....	.....	16	9¼	11⅞	7½	9⅜	2¼
11¼	6⅞	200	8⅜	8¼	8¼	North Central Texas	(sh)	400,000	N.P.	15cQ	12- 2-29	12⅜	9½	14¼	8½	18½	6⅛
2½	1	3,300	1⅛	1	1	Pandem	(sh)	489,875	N.P.	.....	.....	9⅜	3¼	6	2⅛	3½	½
4⅜	1⅞	400	2½	2½	2½	Pantapec Oil	(sh)	1,506,000	N.P.	.....	.....	12⅛	7	15⅝	8½	10¼	1⅞
..	..	No sales.				Pennok Oil		$150,000	N.P.	.....	.....	13½	5⅛	7¾	4⅞	7¾	4⅜
10½	9	700	10	9½	10	Red Bank Oil	(sh)	250,000	N.P.	.....	.....	24⅜	7	18	4⅞	16	9⅝
5⅜	2⅛	900	3	2⅞	3	Reiter-Foster	(sh)	388,584	N.P.	10cQ	12- 9-29	15½	3½	12⅞	4⅛	8½	1⅛
8⅝	3⅝	200	5	5	5	Ryan Consolidated	(sh)	500,000	N.P.	.....	.....	7	4½	12	4⅛	11	3
2½	1½	100	1⅜	1⅜	1⅜	Salt Creek Consolidated	(sh)	1,286,300	$10	10cQ	1- 2-30	8	5¼	7¼	5½	5⅞	1⅞
15¼	10	400	11¾	11⅝	11⅝	Salt Creek Producers	(sh)	1,496,859	$10	50cQ	2- 1-30	35½	27¼	35	23⅛	25⅞	9
1	½	100	¾	¾	¾	Savoy Oil		$750,000	$5	.....	.....	7	1¼	3½	1	2½	5/16
..	..	No sales.				Transcontinental pfd		.....	....	.....	.....	..	..	..	..	..	..
4½	2¼	300	2⅞	2¾	2⅞	Venezuelan Petroleum	(sh)	755,090	$5	5cQ	11-15-29	7⅜	4¼	9⅛	4¾	6½	1¾
5	2	1,700	5	4¾	4⅞	Woodley Petroleum		$500,000	$1	.....	.....	7	4⅜	8¼	4⅞	9½	2
2½	½	300	1⅜	1¼	1¼	Y Oil & Gas (new)		$100,000	N.P.	.....	.....	6	1¾	8⅜	2⅛	2⅞	¼

*Including one-half per cent monthly in stock. †Payable monthly and a monthly stock dividend of one-half per cent.

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended June 11 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
181½	121¼	400	181½	181½	181½	Anglo-American Oil (vot. C.O.D.)		£4,192,635	£1	.36 5/16	11-27-29	21⅝	17⅞	22⅜	14⅞	17	11
1	½	200	¾	¾	¾	Atlantic Lobos		.....	....	.....	.....	..	..	..	..	..	..
25	20	100	20½	20½	20½	Borne Scrymser		$1,000,000	$25	$1SA	10-15-29	69	50	56½	44½	46½	25
69	57	100	58	58	58	Buckeye Pipe Line		$10,000,000	$50	$1Q	12-14-29	60	45	76	53	74¼	55
184⅞	155	100	160	160	160	Chesebrough Mfg.		$3,000,000	$25	1Q*	12-30-29	126	76½	161	117	210	130
17¾	12⅛	100	16½	16½	16½	Continental Oil (V.T.C.)		$36,057,840	$10	.....	12-15-27	22⅝	16¼	23	16	29	10
65¾	40½	100	60	57	60	Cumberland Pipe Line		$1,500,000	$50	$1Q	12-15-29	137	89	114	67	75¾	40
54¾	43	100	46	46	46	Eureka Pipe Line		$5,000,000	$100	$1Q	11- 1-29	68½	47	88	64⅛	70½	42
7	2½	1,200	6¼	6	6	Galena Oil Corp.		$16,000,000	$100	.....	.....	13½	3½	13	4¼	6½	3
119	78	2,600	97½	93½	94	Humble Oil & Refining		$74,103,300	$25	50cQ	1- 1-30	68½	54	114¾	59¼	128	74⅛
311	305	100	307	307	307	Illinois Pipe Line		$20,000,000	$100	$10SA	12-16-29	182	123¾	290½	176½	340½	260
30	22⅛	3,000	23¾	23	23½	Imperial Oil of Canada (new)	(sh)	26,421,768	N.P.	12½cQ	12- 2-29	64¾	37¾	104	56¾	41	22
41	35¾	200	35¾	35¾	35¾	Indiana Pipe Line		$3,000,000	$10	50cQ‡	2-15-30	94½	61	91⅞	74⅝	41⅞	26
24	17⅞	3,100	20¼	19½	19½	International Pet.	(sh)	14,247,088	N.P.	12½cQ	12-16-29	29	28¼	55	35	30⅝	15
22⅜	18	800	18⅛	18	18	National Transit		$6,362,500	$12.50	25cQ‡	12-16-29	24	13½	32⅜	19⅜	25⅛	10½
21⅜	14	300	20¾	20	20¾	New York Transit (new)		$1,000,000	$10	40cQ†	1-15-30	44½	31¼	75	38⅜	17½	10
54	37	50	43	43	43	Northern Pipe Line‖		$2,000,000	$50	$2SA	1- 2-30	100	70	69	56½	63	41
76⅜	66⅛	1,600	74⅝	73⅜	73⅜	Ohio Oil		$60,000,000	$25	5cQ‡	12-14-29	67⅞	52	84	58½	79⅜	64⅛
32	20	100	21½	21½	21½	Penn Mex. Fuel		$10,000,000	$25	50cQ	12-14-29	39	12	84	28	44½	20
33	16¼	200	16¼	16¼	16¼	Solar Refining		$4,000,000	$25	$1.25SA	12-20-29	..	..	..	..	50	29
20⅞	13	400	17	16	16⅞	Southern Pipe Line		$1,000,000	$10	50cQ	.....	27¼	15½	19	15	22½	13
45⅞	37½	200	40	40	40	South Penn Oil (new)		$30,000,000	$25	50cQ	12-30-29	41½	35	71⅞	36⅝	60¼	35⅛
64	50	100	51	51	51	Southwest Pa. Pipe Lines		$1,750,000	$50	$1Q	1- 10-29	83	55½	102	70	70	60
50⅞	49⅞	15,300	52	50¼	50½	Standard Oil of Indiana		$348,175,069	$25	62½cQ‡	12-16-29	81½	64⅜	95⅞	70⅞	63	45
40½	33¼	1,400	35⅝	34½	35½	Standard Oil of Kentucky		$25,654,516	$10	40cQ	12-16-29	130	111½	179¾	122¼	46⅞	29
48⅞	44⅛	100	48⅜	48⅜	48⅝	Standard Oil of Nebraska		$4,649,225	$25	62½cQ‡	12-20-29	49½	40	54⅞	39⅞	50¼	40
108½	81	200	82	81½	81½	Standard Oil of Ohio		$14,000,000	$25	62½cQ	1- 2-30	87½	72	134	71	129	60
10	8	100	8	8	8	Swan-Finch Co.‖		$861,466	$25	.....	12- 2-29	21	14½	23½	16	18	10
97⅞	85⅜	4,500	89½	85¾	86	Vacuum Oil Co.		$126,180,350	$25	$1Q	12-20-29	..	..	111	72	133¾	75

*Plus 50 cents extra. †Plus 10 cents extra. ‡Plus 25 cents extra. ‖Bid and ask.

ROCKY MOUNTAIN AREA

(Continued from Page 139)

paw shale and the oil is said to be a paraffin base crude. The strike is not regarded as commercial, but finding it in that area may lead to the discovery of a new field. The Bearpaw shale lies just over the Judith River formation and both are strata of the upper Cretaceous.

The River Dome Oil Co. is starting a well in the Cat Creek Field in central Montana. This company controls some leases on the central part of the Cat Creek structure and the well is expected to be a producer as it offsets some of the best wells found in that field.

The Jones Oil Co., developing the Bowdoin Dome in Phillips and Valley Counties, northeastern Montana, for the Bowdoin Utilities Co., has received shipment of casing and is starting active drilling again on the well south of Saco.

ROCKY MOUNTAIN PRODUCTION

Daily average pipe line runs from the various pools in the Rocky Mountain area for the week ending June 14:

WYOMING	
Salt Creek	28,830
Frannie	....
Big Muddy	2,020
Oregon Basin	4,740
Dutton	50
Elk Basin	830
Byron	10
Warm Springs	120
Lovell	20
Ferris	20
Grass Creek	2,280
Hamilton	790
LaBarge	2,000
Lance Creek	130
Lost Soldier	900
Osage	880
Poison Spider	120
Rock River	2,190
Border	100
Lander	....
Simpson Ridge	50
Teapot Dome	30
Dallas Derby	240
Mule Creek	....
Hudson	280
Cody	....
Total	46,630
MONTANA	
Cat Creek	1,150
Kevin-Sunburst	5,820
Pondera	2,330
Lake Basin	70
Total	9,370
COLORADO	
Moffat	1,043
Fort Collins	1,355
Florence	468
Iles	1,007
Tow Creek	403
Boulder	25
Rangley	50
Total	4,351
NEW MEXICO	
Hogback	430
Rattlesnake	1,297
Table Mesa	103
Artesia	680
Cap Rock (Maljamar)	901
Jal	1,350
Hobbs High	10,278
Getty	....
Lea	5,751
Miscellaneous (Lea County)	474
Total	21,264
Grand total	81,615
Grand total June 7	81,798
Difference	183

LESS STRAIGHTRUN GASOLINE IS NEEDED

(Continued from Page 39)

line from crude oil reflects this situation. For the first four months of this year the average yield of gasoline per barrel of crude oil refined was slightly in excess of 46 per cent. This figure does not include the natural gasoline blended outside refineries which if included would mean approximately 47 per cent. It is predicted that before the end of 1931 the refining industry will expand its cracking facilities with additional natural gasoline so that the industry can figure 21 gallons of motor fuel for every 42 gallons of crude oil.

The production of cracked gasoline last year totaled 143,759,000 bbls. Should the gain of the first four months continue through 1930 it will mean an increased production of cracked gasoline for the year of 33,490,000 bbls. Should the 8.4 per cent gain in natural gasoline continue the increase in output of that product will total 4,390,000 bbls. or a total of almost 39,000,000 bbls. for the two products.

This is equal to a normal increase in the yearly demand for motor fuels. In this connection as previously stated it is generally felt that the 12.6 per cent gain in total gasoline demand the first four months will not be maintained. A decline in the 23.3 per cent increase in exports is practically certain and many do not expect the 10.8 per cent increase in domestic consumption to be maintained. Domestic gasoline demand ran high during the summer and fall of last year due to the large increase in new car registration and a general prosperity that enabled owners to use maximum quantities of gasoline. This year has been marked with over a 30 per cent decline in new car sales and a depression in all parts of the country which is expected to have some effect on the use of cars and other motor vehicles.

Thus, if future months see a return to a more normal basis in demand the increased production of cracked gasoline and natural gasoline will easily take care of the gain in consumption without the aid of an increase in the quantity of straightrun gasoline from crude oil.

Curtailing Cracking

It probably will be argued by some that the remedy for this situation lies in the curtailment of natural gasoline and cracked gasoline in order to permit more crude oil to be run to stills and more straightrun gasoline produced. It is doubtful if such a suggestion will find favor with a majority of the refiners and natural gasoline manufacturers. The expansion in cracking facilities has been based on sound economic manufacturing principles and the developments of the past few months have not changed these fundamental conditions. In fact they have increased in importance from the standpoint of the refiner and marketer.

Without attempting to give detailed data as to refining costs it can be said that the cost of cracked gasoline is still less than straightrun gasoline. There are exceptions to this rule which are of minor importance in the field of motor fuel production.

Recent weeks have seen a decline in fuel oil and gas oil prices except for certain coastal areas and this naturally adds to the attractiveness of cracking operation. A slow industrial demand and the expansion of natural gas as fuel have contributed to this fuel oil and gas oil situation.

The demand for the heavier ends of crude oil have been so slow during the past few months that the average refiner has almost been forced to expand his cracking operations in order to get rid of his fuel oil and gas oil cuts. With gasoline prices on the decline the refiner naturally pays most attention to that phase of his operation which gives the greatest gain or the smallest loss and between a skimming and cracking operation based on the relative costs of raw material and the manufacturing operation the advantage is generally with the latter.

Antiknock Demand

The increasing demand for motor fuels high in antiknock rating will also tend to keep cracking facilities in operation even in cases where there is a slight advantage in favor of the skimming operations. The trend in marketing is toward gasolines with higher and higher benzol equivalents, the best grades usually commanding a premium.

Due to this condition a cracked gasoline at a refinery is often worth from one-fourth to 1 cent a gallon over a straightrun gasoline skimmed from a crude oil which also furnished the charging stock for the cracking operation. This situation has become so important that already many refiners are faced with the problem of disposing of their straightrun gasoline. This is particularly true of refiners operating with paraffin or mixed base crude oils.

Many of these refiners in using their cracked gasolines for the premium grades including Ethyl Gasoline have left, substantial quantities of straightrun gasoline with a benzol equivalent from 10 to 20 which does not give satisfactory service with many high compression cars and is not suitable for sale at ordinary prices.

So important has this development become that a few refiners have reduced their purchases of high gravity crude oils in order to purchase the lower gravities with their smaller yields of straightrun gasoline and their larger yields of fuel oil and gas oil for cracking stock. Some have predicted that this shift in relative values will become so important in time that it will mean that posted crude oil prices will no longer be based on gravity but will take into consideration the characteristics of the crude which have a direct bearing on the quantity and quality of gasoline obtainable with a high antiknock rating.

With these situations in mind it generally is felt by those in touch with refinery operations that cracking facilities will continue to expand until the maximum has been reached in the production of cracked gasoline.

It is even more apparent that no curtailment in the production of natural gasoline is to be expected. Natural gasoline is manufactured from wet gases which otherwise would be wasted so far as the recovery of the gasoline fraction is concerned. It is impossible to conceive of straightrun gasoline becoming so cheap that natural gasoline manufacturers would find it expedient to shut down or materially curtail their plant operations. The only control of this output lies with the producer who by curtailing the output of producing wells or by stopping the drilling of wells can shut off the supply of wet gas available to the manufacturers. The production of natural gasoline is expected to increase the last half of the year.

From the foregoing the conclusion is drawn that any curtailment in the supply of motor fuel must come from the crude oil runs to stills. The refiner who expands his cracking facilities or increases his purchases of natural gasoline more than his consuming market will readily absorb must expect to run less crude if a weak market situation is to be remedied. This is the lesson of the past four months in refinery operations and the lesson points to the remedy over the remainder of the year.

PIPE LINE IS BASIS FOR GASOLINE PRICES

(Continued from Page 41)

Refining Co., an important refiner and marketer in the Ohio territory.

Marine Terminals

A number of the large companies operating in New England territory are moving an important proportion of their gallonage by water, using tank cars only for short hauls from marine terminals, and in many cases largely utilizing their tank wagon fleets for this service. Most of the big companies engaged in marketing operations in this area are now operating, or have under construction, marine terminals located at strategic points along the New York State barge canal system. Regular fleets of tankers are operated in this service, the vessels being of special construction, with virtually no superstructure, to permit of their passage under the low bridges along the canal system. In most instances, the tankers make their return runs to the refineries in water ballast to keep them sufficiently low in the water to effect these bridge clearances.

Small ocean-going tankers, with capacity of from 10,000 to 20,000 bbls., are also being used more extensively in the Coastal service here. Among the companies utilizing this type of carrier are the Shell Eastern, Tide Water, Standard Oil Co. (New Jersey), Beacon, Sinclair and others. Crew Levick, eastern refining and marketing subsidiary of the Cities Service Co., has recently opened two large marine terminals on the Canadian seaboard which are being supplied by coastal tanker shipments. A number of the companies have developed special types of vessel for the coastal deep water runs. An outstanding example of this type of tanker is the new Diesel electric J. H. Senior which Standard Shipping Co., the marine subsidiary of the Standard Oil Co. (New Jersey), is operating out of Baltimore in the Chesapeake Bay service. The Tide Water Oil Co. has recently placed in service two vessels of similar type, and other oil companies are also adding to their coastal fleets.

Barge Distribution

The inland waterway distributing systems of the large oil companies, however, are still in their infancy. The tendency in this service is toward the use of large barges, which are not self propelled. There are a number of oil barges of this type now in use in the Ohio and tributary rivers, and it is reported that 50 or more are now building in the vicinity of Pittsburgh, and will go into service before the close of 1930. The average barge of this type has carrying capacity of approximately 100,000 gallons, river conditions making it necessary to build these barges of relatively shallow draft to permit of their operation under all conditions.

Thus far, there has been no change in pricing methods of gasoline in the East, aside from the changes made several months ago whereby tank wagon and service station prices at many points were established on the basis of the cargo market at tidewater, plus rail freight to interior markets. It is now considered likely, however, that completion of the several gasoline pipe line systems now under construction, as well as the greater use of oil barges on the inland waterways, will be followed by a similar change in the method of determining gasoline prices at inland markets which are not supplied by shipments from seaboard terminals.

The Great Lakes region is witnessing this year a marked expansion in petroleum transportation, as well as the establishment of a number of new large bulk terminals, but this represents an expansion of facilities already established, rather than an entirely new development, such as the widespread use of oil barges in many of the inland rivers and the pronounced swing toward pipe line transportation of motor fuel.

NEW GASOLINE WAR ON THE PACIFIC COAST

(Continued from Page 42)

market because of the almost inexhaustible flow of cheap gasoline. No sooner is one batch bought up to prevent it from demoralizing the market than another large quantity makes its appearance.

If these deductions are correct and the large companies make a determined effort to liquidate excessive stocks of gasoline someone is going to get hurt unless it is possible to hibernate for the duration of hostilities. It goes without saying that marketers are desirous of liquidating excessive stocks at the best price possible, but at the same time this can be done only by diverting part of the normal business and this only by meeting competition on an equal basis or at better prices.

Retail prices for gasoline of the major companies dropped from 1 to 2 cents per gallon over the past week-end, while motor fuel of independent refiners and bootleg gasoline has declined 3 and 4 cents per gallon.

In the San Francisco Bay region and up along the Coast to Portland, Ore., and Seattle, Wash., independent dealers slashed retail prices to 15 and 16 cents per gallon following the reduction of major companies to 17 cents. In Los Angeles territory the reductions were more drastic, retail prices of independent gasoline dropping as low as 10 cents per gallon. All of these quotations include the regular state gasoline road tax prevailing in Washington, Oregon and California.

The next two weeks should determine the future status of gasoline prices during the coming summer. Heretofore these periodical gasoline wars have been concluded previous to the summer season, but this year it is starting so late it may run well into the season, in which event gasoline will be cheap all year notwithstanding that crude oil curtailment has been quite successful.

SECOND UNIT PLAN IN VAN FIELD IS STILL UNDER DISCUSSION

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 16.—Last week's report carried the possibility of another unit plan being in process of formation for acreage to the north and east of the land which falls under Plan No. 1 in the Van Pool, Van Zandt County, but nothing more definite can be said of this possibility at this writing, although Humble Oil & Refining Co.'s No. 1 Mrs. E. E. Carroll in the southeast corner of a 95-acre tract in the William Daniel Survey, about 2 miles northeast of production in the pool, continues to log the various formations favorably for production, and if this makes a commercial producer, it may have considerable to do with the surrounding acreage being pooled in the second plan.

The Humble's test topped the Austin chalk at 2,551 feet and went out of it at 2,749 feet, and is now drilling ahead at 2,783 feet in red beds. Elevation of this test is 472 feet. It topped the Pecan Gap at 1,576 feet, which is high for this area. This will mean a great extension to the pool which is now approximately 3½ miles long in a southwest-northeast direction, and the test is probably the most interesting in the county at present.

Imperator Oil Co.'s No. 1 G. R. Carter, a short distance to the north, in the William Daniels Survey, may also mean an extension to the Van Pool, although it is now drilling dry sand at 3,385 feet with a surface elevation of 433 feet, and has had no showing of oil or gas. Austin chalk was topped at 2,930 feet in this test.

Topped Woodbine

Several wells in the Van Pool topped the Woodbine sand at lower levels than the Humble's present depth, and although those wells are small, marking edges of the field, the Humble's test may be considered as having good possibilities.

Cranfill & Reynolds' No. 2 Coker, in the William Daniels Survey, northwest of the above mentioned tests, is shut down at 1,270 feet bailing showing of oil which amount to a half gallon to each bailer of salt water. Top of the sand in this shallow test was found at 1,268 feet. It was drilled primarily for the purpose of testing the shallow sand encountered in No. 1 Coker which was drilled 100 feet to the south of No. 2. This test had an oil showing around 1,400 feet, and it was thought production might be found in commercial quantities in this sand.

The Shell Petroleum Corp. is still rigging up on its derrick which was erected over No. 1 Stephens near the town of LaRue in eastern Henderson County. This test is to be drilled to the Trinity formation unless salt or commercial production is found.

Core Testing in Cherokee

The Mid-Kansas Oil & Gas Co. is core testing in the southern part of Cherokee County, and torsion balance crews are working this area as well as in several other counties in the East Central Texas district. Humble Oil & Refining Co. is "shooting" the Blackfoot area, around Roeser and others' No. 1 Moody dry hole drilled a couple of months ago.

Craft and Kelsey have abandoned their location on the Enas farm in the John Prade Survey, located within No. 1 unit plan of the Van Pool, and E. L. Chapman's No. 1 J. B. Clark, in the William James Survey, has also been abandoned, precluding an orgy of drilling on offset acreage, which would have been necessitated if these tests had been sunk.

There are still 45 miles of pipe to be laid and welded on the Pure-Van 10-inch pipe line from Chandler to Smiths Bluff on the Gulf Coast.

The Van Pool has produced approximately 2,250,000 bbls. of oil since its discovery October 14, 1929, and the pool is now averaging 25,000 bbls. per day, but will be allowed a daily average production of 50,000 bbls. when the 10-inch line to the Gulf is completed, which will give the pool its first outlet by pipe line. A short 10-inch line to Chandler, and a loading rack at that place is the only present outlet for the production.

Navarro County

Bateman Co.'s No. 1 McCowan in the McCowan tract of the Morris Webb Survey, 2½ miles east of Bazette in Navarro County, is interesting due to the fact that it is only 400 feet southwest of the old Humphrey's No. 1 McCowan which had 7 feet of saturated core at 3,230 feet, and is 300 feet southwest of Humphrey's No. 1 Boyd-Connor which made 5,000,000 feet of gas. It is approximately 10 miles northeast of the Powell Pool, and is on a core drill structure. Destined depth is 3,250 feet.

EAST CENTRAL TEXAS

Boggy Creek	3,620
Cedar Creek	35
Currie	312
Hill County	35
Mexia	4,162
Minerva	567
Nigger Creek	190
Powell	5,734
Richland	205
Thrall	41
Van	25,519
Wortham	785
Total East Central Texas	41,205
Total week ending June 7	40,260
Increase	945

COMPLETIONS IN EAST CENTRAL TEXAS

Freestone County

Killam & Phillips' No. 1 Killam had the Pecan Gap at 3,470 feet, and was dry and abandoned at a total depth of 3,854 feet.

Marion County

H. F. Hunt's No. 1 Susie Chatten had a show of gas at 2,500-10 feet and show of oil at 2,510-15 feet; total depth 3,415 feet; dry and abandoned.

Smith County

Adair & Daniels' No. 1 A. J. Poirier had the Pecan Gap at 2,857-3,000 feet, dry and abandoned at total depth, 4,537 feet.

Van Zandt County

Craft & Kellsey's No. 1 Evas, abandoned location. E. L. Chapman's No. 1 J. B. Clark, abandoned location.

SUMMARY OF VAN POOL COMPLETIONS

Company and farm—	Lease No.	Well No.	7-in. csg. point (feet)	Total depth (feet)	Initial prod. (bbls.)	Comp. date
Pure, Bolin	51	1	2,684	2,931	428	5-26-30
Pure, Cannon	64	1	2,637	2,876	1,155	4-21-30
Pure, Cannon	64	2	2,704	2,936	403	5-20-30
Pure, A. D. Clark	63	1	2,738	2,880	346	3-21-30
Pure, A. D. Clark	63	2	2,657	2,923	261	5-23-30
Pure, A. D. Clark	63	3	2,714	2,930	53	5-26-30
Pure, Clark & Houston	65	1	2,682	2,870	374	4-26-30
Pure, Clark & Houston	65	2	2,653	2,924	288	5-20-30
Pure, Clark & Houston	65	3	2,672	2,930	866	5-12-30
Joint-Acct. A. D. Clark (was Cranfill-Reynolds)	700	1	2,675	2,924	644	5- 6-30
Pure Cons. (was R. L. Wells, Lse. 55 or Gin Lot)	79	1	2,651	2,876	1,043	4-10-30
Pure, Consolidation	79	2	2,663	2,932	543	5-20-30
Pure, Crim	83	1	2,880	3,082	95	*5-12-30
Pure, Ellison	67	1	2,863	2,942	143	4-19-30
Shell, B. M. Fowler	301	1	2,498	2,887	1,530	4- 2-30
Shell, E. L. Fowler	302	1	2,460	2,696	1,714	2- 7-30
Shell, E. L. Fowler	302	2	2,460	2,911	693	5- 5-30
Shell, E. L. Fowler	302	3	2,610	2,941	603	5-30-30
Shell, E. L. Fowler	302	4	2,530	2,953	533	5-29-30
Shell, E. L. Fowler	302	6	2,575	2,948	406	5-20-30
Humble, Freeman	208	1	2,826	3,017	188	†5-11-30
Pure, D. R. Howell	45	1	2,562	2,885	1,425	4- 4-30
Pure, Jarman	37	1	‡2,587	2,710	1,790	10-14-29
Pure, Jarman	37	2	2,518	2,898	1,511	4- 5-30
Pure, Jarman	37	3	2,406	2,941	690	5- 4-30
Pure, Jarman	37	4	2,380	2,884	1,159	4-29-30
Pure, Leonard	30	1	2,778	2,947	405	5-11-30
Pure, A. F. Magers	18	1	2,834	2,998	408	4-27-30
				2,963	(902 bbls. at 2,863 feet)	
Pure, Maxfield	38	1	2,389	2,943	1,103	5-31-30
Pure, Morris	601	1	2,643	2,935	423	5-21-30
Pure, Murphree	31	1	2,535	2,953	643	5- 8-30
Pure, Neils	66	1	2,802	2,961	128	5-18-30
Pure, Peters	29	1	2,880	3,023	846	§4-19-30
Pure, Stewart	48	1	2,649	2,933	616	5-30-30
Pure, Thompson	49	1	2,598	2,670	1,401	12- 6-29
Pure, Thompson	49	2	2,530	2,874	1,362	4- 3-30
Pure, Thompson	49	3	2,500	2,882	928	4-29-30
Pure, Thompson	49	4	2,541	2,942	603	6- 2-30
Sun, Thompson	401	1	2,461	2,693	948	2-18-30
Sun, Thompson	401	2	2,413	2,940	1,088	6- 2-30
Pure, E. B. Tunnell	56	1	2,601	2,881	823	5- 1-30
Pure, E. B. Tunnell	56	2	2,596	2,881	1,576	4-21-30
Pure, A. R. Tunnell	59	1	2,486	2,898	1,301	3-25-30
Pure, A. R. Tunnell	59	2	2,624	2,956	265	5-24-30
Shell, I. P. Tunnell	300	1	2,499	2,680	1,860	12-14-29
Shell, I. P. Tunnell	300	2	2,426	2,666	1,898	12-14-29
Shell, I. P. Tunnell	300	3	2,512	2,902	1,470	3-28-30
Shell, I. P. Tunnell	300	4	2,467	2,949	¶403	5-31-30
Texas, R. A. Tunnell	506	1	2,755	2,881	1,358	3-27-30
Texas, R. A. Tunnell-A	505	1	2,744	2,878	328	4-14-30
			(Deepened from 2,771 feet, 343 bbls. 1-31-30)			
Pure, Van School	60	1	2,647	2,940	1,111	4-29-30
Pure, R. L. Wells	47	1	2,518	2,678	1,218	2- 1-30
Pure, R. L. Wells	47	2	2,627	2,869	881	4-30-30
Pure, R. L. Wells	47	3	....	2,931	408	6- 3-30
Texas, R. V. White	500	1	2,753	2,990	1,503	3-26-30
Texas, W. White	501	1	2,443	2,692	1,182	2-21-30

The casing seat point in these wells is considered as top of the pay or Woodbine sand. *Plugged back 3,037 feet. †Plugged back 2,948 feet. ‡8¼-inch. §Plugged back 2,964 feet. ¶16 hours.

EAST CENTRAL TEXAS WILDCATS

Week Ending June 16

ANDERSON COUNTY

Navarro, Sun and Humble's No. 1 Gardner, 1,150 ft. from N and 150 ft. from E of 147.5-acre tract in M. M. Salizar Sur. ..... Drlg. 2,950 ft.

Sun Oil Co.'s No. 2 Bowers & Maier, 150 ft. from S and 140 ft. N of SW, 1,450 ft. SW of SE lines of tract ..... Drlg. 1,391 ft.; top Pecan Gap 1,148 ft.

HENDERSON COUNTY

H. E. Ashburn et al's No. 1 T. E. Barry, center of Barry's 59-acre tract in A. York Sur. ..... Shut down 2,425 ft.

Chapman's No. 1 Cade, 1,662 ft. from N and 3,294 ft. from W of J. B. Dorsey Sur. ..... Shut down 3,100 ft.

Cranfill & Germany's No. 1 Stow, 2,582 ft. E, 785 ft. S, Guadalupe Acosta Sur. ..... Location.

George Pace et al's No. 1 Mrs. Sarah Anthony, 273 ft. N and 132 ft. W of SE cor. of S. Anthony 632-ac. tract, Jose W. Battvan Sur. ..... Derrick.

Shell's No. 1 Stephens, 760 ft. from S, 830 ft. from E lines I. D. Owens Sur., S. T. Stephens 118-ac. tract ..... Shut down 4,366 ft.; rigging up; will drill deeper.

HUNT COUNTY

Branson et al's No. 1 West, 350 ft. N, 350 ft. W of W 60-ac. tract, Jas. Rooces Sur. ..... Spudded.

KAUFMAN COUNTY

Sowell et al's No. 1 Ables, 1,200 ft. from SE, 1,000 ft. from SW of Ables' 233-ac. tract, Elizabeth Ables Sur. ..... Underreaming pipe 543 ft.

NAVARRO COUNTY

Bateman Oil Co.'s No. 1 McGowan, 250 ft. from S and 3,000 ft. from E in Morris Webb Sur. ..... Location.

Navarro Oil Co.'s No. 2 Mathews, 3,600 ft. from S and 1,140 ft. from W of Smith Sur., 3 miles E of Dawson ..... Location.

Wheelock's No. 1 Castles, 150 ft. from S and W of 31.5-ac. tract in Abner Mathews Sur., 1 mile N of Eureka ..... Location.

Young et al's No. 1 Farmer, 700 ft. from S and 400 ft. from E of 110-ac. farm in F. Finley Sur. ..... Location.

Tidal Oil Co.'s No. 1 Longbothan, 450 ft. S and 150 ft. E of 92-ac. tract, Turner Smith Sur. ..... Drlg. 2,858 ft.

RAINS COUNTY

Everett & Morrison's No. 1 Franklin, 640 ft. from S and E of 75-ac. tract in John Christian Sur., 6 miles SE of Emory ..... Spudded and shut down.

Owens & Sloan's No. 1 Hill, 150 ft. out of NW cor. of 150-ac. tract, T. McMahon Sur. ..... Drlg. 3,630 ft.

RUSK COUNTY

Mass et al's No. 1 Mathews, 2,244 ft. from N, 4,356 ft. from E, Dalines Cartinas Sur. ..... Rigging up.

SMITH COUNTY

Owens & Sloan Oil Co.'s No. 1 Starnes, 846 ft. along W lines of John Waller Sur. from NE cor. of J. O. Dillard Sur., and 80 ft. E at right angles to W line of J. Waller Sur. ..... Shut down 1,322 ft.

Sutton et al's No. 1 W. D. Hammond, 150 ft. out of SW cor. W. D. Hammond tract in Jas. Reed Sur. ..... Preparing to start up.

Winona O. & G. Co.'s No. 1 Freeman, 150 ft. from S. W of 89-ac. tract in A. J. Lagrone Sur., 4 miles SE of Winona ..... Derrick.

VAN ZANDT COUNTY

L. R. Barton's No. 1 Wamble, 300 ft. from S and W of 100-ac. tract in Pleasant Young Sur. ..... Derrick.

Century Oil Co.'s No. 1 L. A. Stewart, 1,200 ft. N, 132 ft. E of SW cor. of A. J. Hershley Sur. ..... Drlg. 2,932 ft.; Pecan Gap 2,485-2,570 ft.

E. L. Chapman's No. 1 Charles Wolverton, 215 ft. from N, 60 ft. S of NE cor. of Wolverton 10-ac. tract, William James Sur. ..... Derrick.

Cranfill & Reynolds' No. 2 D. S. Coker, 100 ft. NE of No. 1 Wm. Daniel Sur. ..... Shut down 1,270 ft.; top sand 1,268 ft.; bails one-half gal. oil to each bailer of salt water.

T. Daniels' No. 1 Fannie Cumbine, 185 ft. S and 175 ft. E of NW cor. 156-ac. tract, John Wright Sur. ..... Will start up.

Dennis Oil Co.'s No. 1 C. W. Morris, 100 ft. from N and 300 ft. from E lines of Morris 160-ac. tract in C. L. Morris Sur., 5 miles SE of Ben Wheeler ..... T. D. 3,065 ft.; sand 3,060-65 ft.

Grand Saline Oil Co.'s No. 1 Carns, 200 ft. from S and W of most westerly SW cor. of 588-ac. tract in S.P.R.R. Sur., Abstract 887, 4½ miles N of Grand Saline ..... Drlg. 2,750 ft.; base Pecan Gap 2,505 ft.

Hartt Oil Co.'s No. 1 Dr. L. M. Cox in A. C. Night Sur., 1,785 ft. N of S line and 524 ft. E of W line ..... Derrick.

B. P. Hervey's No. 1 Foster & Smith, 150 ft. S and 150 ft. W of 104-ac. tract, Margaret Neal Sur. ..... Drlg. deeper; rigging up.

Humble Oil & Ref. Co.'s No. 1 Mrs. E. E. Carroll, 150 ft. from S and 150 ft. from W of Carroll 95-ac. tract, Wm. Daniel Sur. ..... Top Pecan Gap chalk 1,576 ft.; drlg. 1,735 ft.

Howard & Dooley's No. 1 Elliott 188-ac. tract in W. H. Bundy Sur.	Derrick blew down.
Imperator Oil Co.'s No. 1 Canter, 150 ft. from N and W of Carter 171-ac. tract, W. M. Daniel Sur., NE of Van Pool	Drlg. 3,360 ft.
Priest et al's No. 1 Blewitt, 175 ft. NW and SW of SE cor. of NW 84-ac. tract, E. Porter Sur.	Rigging up.
Pure Oil Co.'s No. 1 C. White, 642 ft. from N and 250 ft. from W, Mrs. C. White 45-ac. tract, John Walling Sur.	T. D. 2,951 ft.; to wash in.
Pure Oil Co.'s No. 1 R. V. White (Texas Co.), 200 ft. from W and 250 ft. from S, 25-ac. tract, John Walling Sur.	Drlg. 2,100 ft.
Pure Oil Co.'s No. 1 J. A. Bracken, 69-ac. tract, 673 ft. from N and 225 ft. from E, John Walling Sur.	Drlg. 2,476 ft.
Pure Oil Co. and Sun Oil's No. 1 Wallace, 347-ac. tract, 200 ft. from W and 315 ft. from N, John Walling Sur.	Drlg. 2,495 ft.
Pure Oil Co.'s No. 1 Well & Tunnell, 54-ac. tract, 225 ft. from E and 250 ft. from N, H. V. Moore Sur.	Comp. total depth 2,942 ft.; no gauge.
Pure Oil Co.'s No. 1 Davis, 127 ft. from S and 200 ft. from W of 139-ac. tract, Nacogdoches County School Land	Derrick.
Pure Oil Co.'s No. 1 Miller, 328 ft. from N and 177 ft. from E of 5-ac. tract in Mund Gross Sur.	Set 10-in. csg. 306 ft.
Pure Oil Co.'s No. 1 M. Davis, 127 ft. from S, 200 ft. from W M. Davis tract, Nacogdoches County School Lands	Derrick.
Short et al's No. 1 B. C. Andrews, 330 ft. N and 160 ft. E of NE cor. of J. P. Farley 60-ac. tract in Margaret Nell Sur.	Shut down 3,535 ft.
Texas Chief Oil Co.'s No. 1 Foster, 600 ft. E of W line and 600 ft. N of S line of W. P. Foster's 151-ac. tract in F. Montgomery Sur., 7 miles south of Canton	Drlg. 600 ft.
Van Zandt Oil & Dev. Co.'s No. 1 Robinson, located NE cor. of Y'Barbo Sur., 4 miles E of Grand Saline	Drlg. 4,305 ft.
WOOD COUNTY	
Big Indian Oil Co.'s No. 1 R. J. King, 450 ft. W of E line and 150 ft. N of S line of King's 109-ac. tract in Wm. Barnhill Sur.	T. D. 4,001 ft.
Pace et al's No. 1 Dickey, 1,200 ft. from E and 300 ft. from S of Dickey 120-ac. tract, J. O. Clark Sur.	Shut down 3,800 ft.

EARNINGS GAIN, REPORTED BY PAN AMERICAN

(Continued from Page 153)

and other charges, comparing with £5,447,893 in 1928. After payment of preference dividends amounting to £450,000 and common dividends totaling £6,030,340 there was surplus for 1929 of £3,046, which with balance of £237,604, brought forward from 1928, made total of £240,650 carried forward.

Buys Tide Water Export

A further expansion of the Pan American Petroleum & Transport Co. in the world's oil markets was indicated in the report that it had purchased for about $5,000,000 and Tide Water Oil Export Corp., a wholly owned subsidiary of the Tide Water Oil Co. The operations of Tide Water Export are confined chiefly to South America and largely to Argentina and Brazil, where it is an important distributor of gasoline and motor oils.

Owing to nearness of the Aruba refinery it is only natural that Pan American should expand its gasoline markets in the countries of South America. Although Pan American has been interested in the fuel oil markets of South America for several years, the refined oil markets in these countries, especially in Brazil and Argentina, have been held chiefly by the Standard Oil Co. (New Jersey) and the Royal Dutch Shell group. The latter has some small production in Argentina and carries on refining operations in a minor way. It is understood that the company contemplates expanding its operations in that country and has plans for construction of a large refinery, which would receive its crude supplies in part from Venezuela, where Royal Dutch is, it is said, the largest producer of crude oil.

It was reported also that Pan American contemplates expanding its operations in Europe. The company has an asphalt refinery at Hamburg, Germany, but is a small factor in the Europeon gasoline markets compared with other large American oil companies. It is, however, important in the fuel oil markets.

Consumption of gasoline in South America and Europe is growing rapidly as a result of the increasing numbers of automobiles being bought there. Since most of Pan American's production is outside of the United States, the company believes a foreign expansion program of its markets natural.

Mexican Oil & Coal

Mexican Oil & Coal Co., Inc., has been incorporated in Delaware to take over the entire capital stock of the Mexican Oil & Coal Co., S. A. The new company will be a holding company, with Mexican operations to be in the hands of subsidiaries organized under the laws of Mexico. The company controls a number of parcels of prospective oil lands in Mexico.

Lion Oil Refining

Lion Oil Refining Co. declared regular quarterly dividend of 50 cents on common, payable July 28 to stock of record June 27.

Sunray Oil

Sunray Oil Corp. declared regular quarterly dividend of 10 cents, payable July 15 to stock of record June 25.

National Refining

National Refining Co. declared regular quarterly dividend of $2 on the preferred, payable July 1 to stock of record June 15.

Colon Oil

Colon Oil Corp. materially extended its operations in Venezuela in 1928, says Avery D. Andrews, president, in his annual report to stockholders. A total of 14 wells were completed during the year with estimated initial potential production of 2,000 tons per day. The company, through Colon Development Co., Ltd., its producing subsidiary, produced 56,203 metric tons of crude during 1929, and as of December 31, 1929, had 30,702 tons in storage at Casigua.

Commenting on the company's development in the Tarra Field and its construction of a pipe line to move crude from this area to Lake Maracaibo for transportation to tidewater, Mr. Andrews said: "Although the original estimate of the time necessary to complete the pipe line and other projects was two years, or the summer of 1930, the first delivery of oil to the pipe line was made on January 23, 1930, and the first delivery into tank ship at Coloncha was made on January 31; since which time deliveries and shipments have been regularly continued.

"In order to provide funds for the continued and increased drilling of new wells and further exploitation work in new fields concurrent with the completion of the pipe line and other projects, a bank credit of $1,600,000 was established in the latter part of 1929, of which $1,300,000 was used during the year."

No new development work was undertaken in the Las Cruces Field during 1929, operations being confined to drilling in proven territory. No new drilling was started in the El Cuba Field during the year and the Oro Field also remained shut down. In Los Manuels the occurrence of water in close proximity to the oil sands was discovered, but this difficulty was overcome.

The directors' report states that contracts were entered into during 1929 with the Asiatic Petroleum Co., Ltd., for the sale of Las Cruces crude oil up to 20,000 bbls. daily, with the buyer having the option to take further quantities up to the maximum capacity of the present pipe line, 21,000 bbls. daily. The price specified in the contract is based on world oil markets. Contract is subject to cancellation by either seller or buyer on one year's notice, which cannot be given prior to January 1, 1931.

Colon Oil Corp., Mr. Andrews stated, has made short time loans aggregating $21,746,000 to Colon Development Co., Ltd., its wholly owned subsidiary.

Mexican Eagle

Mexican Eagle Oil Co., Ltd., subsidiary of the Royal Dutch-Shell, has resumed dividends with declaration of a dividend of 8 per cent on the preference shares and $6 on the ordinary shares, both of $4 (Mexican) par value. These dividends, which are for the year 1929, are the first dividends paid since 1922, when 8 per cent was paid on each class of stock. Dividends on the company's 7 per cent cumulative first preference stock, also of $4 (Mexican) par value, have been regularly paid.

Resumption of dividends on the ordinary and preference shares reflects the increasing operations of the company in Mexico. Production by Mexican Eagle in 1929 aggregated approximately 12,671,000 bbls.. more than double the output of 6,079,807 bbls. of the previous year, and the largest total since 1921, when 32.338.299 bbls. were produced.

Mexican Eagle early this year acquired control of La Corona Co., another Mexican subsidiary of Royal Dutch-Shell.

Mexican Petroleum

Retiring directors of the Mexican Petroleum Corp., a subsidiary of the Pan American Petroleum & Transport Co., were re-elected at the annual stockholders' meeting here this week.

Pierce Petroleum

Stockholders of the Pierce Petroleum Corp. have approved the sale of the company's assets to the Sinclair Consolidated Oil Corp. in exchange for 645.834 shares of Sinclair common stock. Sinclair Consolidated has made provision for the additional stock through the listing of 700,000 additional shares of common on the New York Stock Exchange.

Under the terms of the consolidation agreement, Sinclair Consolidated assumes all current liabilities and other indebtedness of the Pierce company, including an amount not to exceed $460,000 of debenture bonds. In addition, Sinclair will pay Pierce Petroleum sufficient cash to pay off or redeem not more than 10,500 shares of Pierce Petroleum preferred at $120 a share and dividends from January 1. In addition, Sinclair Consolidated will make provision for the payment of Federal income taxes of Pierce Petroleum Corp. for current and prior years to an amount not to exceed $500,000.

Following approval by Pierce stockholders, E. D. Levy, president of Pierce Petroleum, said: "After the Federal income tax suit and other litigation has been settled it is the intention that the Pierce Petroleum Corp. be dissolved and Sinclair stock distributed to Pierce Petroleum stockholders. In the meantime, the Pierce Petroleum Corp. stock probably will go on a dividend basis late this fall.

"The only asset of the Pierce Oil Corp. is 1,103,419½ shares of Pierce Petroleum common. This stock will be exchanged as soon as Pierce Petroleum Corp. is in a position to exchange the Sinclair common stock with its other stockholders. As a result of this, Pierce Oil Corp. will receive approximately 285,000 shares of Sinclair common.

"Only in 1929 and 1928 was the Pierce Petroleum Corp. able to earn any money. Since January 1, 1930, the corporation has not earned any money. The company has, in my opinion, no future without a supply of crude oil and the cost of providing crude oil would be exorbitant."

TANK WAGON CHANGES

(Continued from Page 150)

station price at Lafayette, La., 2 cents. Same company effective June 11 reduced the gasoline service station price 2 cents at Knoxville, Tenn.

Standard Oil Co. of California effective June 15 reduced gasoline tank wagon and service station prices 3 cents at most points in California, Oregon and Washington.

Magnolia Petroleum Co., effective June 7, reduced kerosene tank wagon price 1 cent at Fort Worth. Same company advanced gasoline tank wagon and service station prices 3 cents at Fort Smith, Ark.

OHIO OIL COMPANY OWNS THE TRANSCONTINENTAL

(Continued from Page 37)

the company produced it in full, but there is no doubt that it would break all records for one company's production for a time. It is hardly likely that the Ohio's Pecos production will be permitted to increase materially for a long time because of the general overproduction situation.

Another aspect of the Ohio Oil-Transcontinental merger lies in its furtherance of the process of the Standard units in breaking over into each other's marketing territory. Transcontinental has a refinery at Fort Worth and is a marketer in North Texas, which is Standard of New York (Magnolia) and also Humble territory. It also markets in Magnolia territory in Oklahoma, as well as breaking into Atlantic territory in the East.

The headquarters of the Ohio Oil Co. is in Findlay, Ohio, but the headquarters of the Mid-Kansas Oil & Gas Co. and the Transcontinental Oil Co. are in Tulsa. There has been no statement showing the immediate future plans of the Ohio Oil Co. It is believed possible that it will take several months to work out a plan of management. It has not been announced if the Transcontinental Oil Co. will retain its name or be merged, perhaps with the Mid-Kansas Oil & Gas Co. under one management.

TAR SAND CONCESSION GRANTED TO MAX BALL

CHATHAM, Ontario, June 14.—Charles Stewart, minister of the interior at Ottawa, with the approval of the Alberta provincial government, has granted a permit to Max W. Ball and B. C. Jones of Denver, Colo., for two years' experimental and exploratory work on the McMurray tar sands of northern Alberta. Conditions call for a commencement of work within 60 days, the expenditure of $15,000 the first year and $30,000 the second year. If the Ball Syndicate's process proves successful after this experimental work, the permittees may, on undertaking to install a commercial plant, set 3,840 acres which will be set aside for two years. The plant is to be of at least 500 tons daily capacity and to cost not less than $100,000. On completion of the plant, a lease of 21 years, renewable for a like period, may be granted.

The Ball Syndicate has obtained control of the McClave process, which separates oil from the sand by use of a solution of bentonite, removing the tar from the resulting pump in flotation cells. The first commercial unit of the plant is to be located on Horse River Reserve about 4 miles south of McMurray. The experimental plant to be erected under the initial two-year permit will have a capacity of 25 tons a day.

On similar terms, a like concession has been granted W. P. Hinton and associates of Montreal and New York, who will utilize a centrifugal process for separating the oil from the sands. The operators will, it is stated, pay a rental of 50 cents an acre with a royalty of 5 cents a ton on sand mined and 5 cents a barrel on oil and bitumen extracted.

The Ball and Hinton enterprises are planning to develop commercial bitumen with a considerable incidental production of crude oil which can be utilized as a base of commercial petroleum products.

NEW BUILDINGS AT EXPOSITION INCLUDE AUTOMATIC PUMP STATION

The views of the Marketers and Refiners Building presented here show how the International Petroleum Exposition officials have forestalled confusion during the 1930 oil show when a 25 per cent larger "World's Fair of the Oil Industry" will be held at Tulsa.

The new structure, 240'x60', to be duplicated in the California Building now under construction, forms a prolongation of the Oklahoma Building, connecting over a ramp. The California structure extends from the Texas Building. The arrangement serves to expedite a systematic survey of every part of the plant when the show is in full swing.

The new buildings have large basements for storage. The wood floors are laid over a thick concrete base. The steel-glass lighting and ventilation system is of the latest improved type.

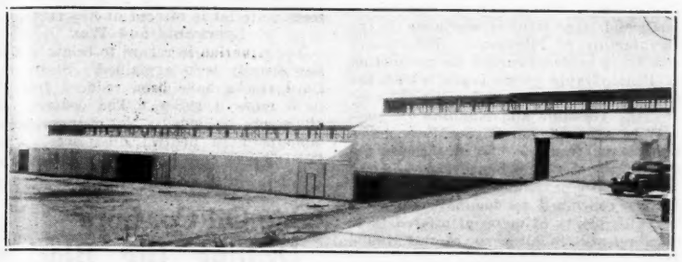
Among the improvements announced for the new automatic pump station at the Exposition plant are: installation of thermocouples for hot bearings, voltage and power failure alarms, shutdown equipment and alarms for high temperatures or a dangerous gaseous condition in the pumping station.

The discharge pump will be shut down for a break in the line and the suction pump will be put on automatically for a predetermined time when the suction pump will be shut down automatically. The motor-driven gate valves will be switched automatically. The centrifugal discharge pump will be shut down automatically for an abnormal delivery in case of a break in the line. By the supervisory control the pumping station can be operated from some remote control and operating conditions can be observed at the remote point.

These announcements are made by William G. Heltzel, chairman of the executive committee, Petroleum Division, of the American Society of Mechanical Engineers, who has charge of the experiment station.

Features shown in 1929 were: starting up and shutting down motor-driven pump by a liquid-level instrument actuated by the pressure head exerted by the fluid in the tank; automatically controlled and electrically operated gate valves on the discharge and filling lines; automatic shutting down of motor-driven pump by high and low-pressure protective gauges; time-clock operation.

EXTERIOR OF MARKETERS AND REFINERS BUILDING

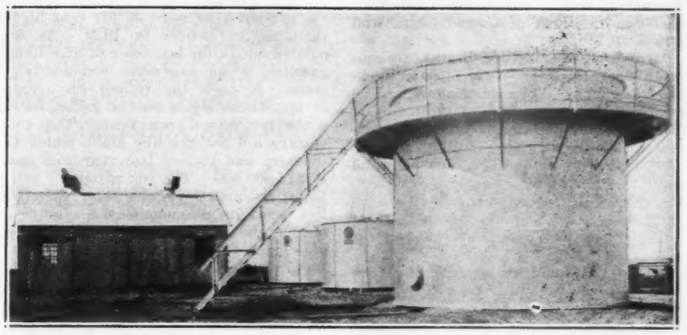


The clean cut addition which will be devoted exclusively to displays of marketers and refiners is presented here showing the relation of the new structure to the Oklahoma Building which extends at the extreme right and terminates at the top of the ramp. In the foreground will be located the larger outdoor exhibits.

INTERIOR, MARKETERS AND REFINERS BUILDING

This interior view of the Marketers and Refiners Building, which is nearing completion at the International Petroleum Exposition plant, will be duplicated in the California Building now under construction and clearly shows the extent of the $200,000 expansion program this year of the "World's Fair of the Oil Industry."

AUTOMATIC PUMP STATION



Improvements which have been made in the automatic pump station display since its presentation in the 1929 International Petroleum Exposition are shown here as the exhibit for the 1930 oil show nears completion. The budget for expenditures on this experiment station of the American Society of Mechanical Engineers was raised from $50,000 to $90,000 recently.

BASIS FOR CHANGES IN FUEL REQUIREMENTS

(Continued from Page 145)

10 per cent and 70 per cent temperatures when a constant carburetor setting is employed and too rich a mixture is not used. On the other hand, manifold temperature and carburetor setting could probably be chosen in each case so as to give the same acceleration with each fuel.

4. Distribution—The ease of mixture distribution, when the engine is warmed up, depends upon the A.S.T.M. distillation temperatures between 50 per cent and 90 per cent evaporated. A more volatile fuel in this range should give better distribution.

5. Crankcase Oil Dilution—The extent of oil dilution depends upon the dewpoint of the gasoline, which is the temperature of complete evaporation of the air-fuel mixture. The dewpoint is related to the 90 per cent A.S.T.M. point,[4] so that under comparable conditions, dilution is less with fuels having lower 90 per cent point temperatures.

6. Fuel Consumption—Fuel consumption is essentially independent of volatility, for all fuels give the same mileage, with very minor variations, when the carburetor is adjusted properly for each fuel. With a fixed carburetor setting, different fuels may give different mileages depending upon the carburetor setting and the operating conditions.

7. Power—Power is likewise independent of volatility, for all fuels give essentially the same power if the carburetor is properly adjusted for each fuel. With a fixed carburetor setting, power may vary slightly depending upon various factors.

In embodying the results of the above researches into gasoline specifications, the following volatility requirements are specified:

(a) Maximum 10 per cent point to insure easy starting.

(b) Minimum 10 per cent point to minimize vapor lock.

(c) Maximum 50 per cent point to tie down the distillation curve between the 10 per cent and 90 per cent points to secure good acceleration on the one hand and good distribution on the other hand.

(d) Maximum 90 per cent point to reduce crankcase oil dilution.

The initial point, the endpoint and the gravity may be significant in connection with a specific refinery output, but in general they are not significant as regards volatility and engine performance. The aviation gasoline specifications will probably be brought in line with the above specification points.

Vapor Pressure

The vapor pressure test is important from the standpoint of vapor lock. While the 10 per cent point is indicative of vapor lock with properly stabilized gasolines, it is not so satisfactory in the case of fuels containing more than traces of propane. The vapor pressure test is satisfactory for all gasolines, and its introduction into specifications is under consideration to replace the minimum 10 per cent point requirement. After extensive work with a complicated laboratory vapor pressure method, it was concluded that the simple Reid method was satisfactory for practical purposes. A high vapor pressure indicates greater danger from vapor lock.

Gum Content

Gum present in gasolines at the time of use may cause objectionable deposits in the intake manifold and on the intake valves. Two problems are involved, the gum content at the time of test, and the gum which forms during storage. The bureau and a number of industrial laboratories are working intensively on both problems, but no tests have been conclusively proven as satisfactory to date. The present copper dish method is not satisfactory, and when suitable test methods have been developed and the permissible gum content has been determined, these will doubtless be incorporated into all gasoline specifications for the Government.

The test for sulphur is reasonably satisfactory, but further work should be done to establish the permissible sulphur content. The bureau is not engaged in any sulphur research at present, but a program of work along these lines is contemplated.

Gasolines which the Government can purchase on specifications are listed below:

1. U. S. Motor gasolines for general use.
2. Motor fuel F for freezing temperatures.
3. Motor fuel T for tropical storage.
4. Motor fuel V for special purpose and the 0° F. temperatures.
5. Domestic aviation gasoline.
6. Fighting aviation gasoline.

[4]S.A.E. Journal, 23, 478 (1928).

EXAMINATION FOR ECONOMISTS

The United States Civil Service Commission announces open competitive examinations for associate mineral economist, $3,200 a year, and assistant mineral economist, $2,600 a year. Applications must be on file not later than July 23, 1930.

Well Near Oil City, Pa., Has Produced Oil Nearly 58 Years

OIL CITY, Pa., June 14.—An oil well nearly 58 years old and still producing is located on the Ware farm in Jackson Township, near Cooperstown, according to John N. Brink of Cooperstown, who writes as follows:

"The well was drilled in the autumn of 1872, on the John Ware farm in Jackson Township, Venango County. The company was composed of Captain Smith, William Titus and Jacob Smith, the contractor being Thomas G. Watkins. It was drilled to a depth of 710 feet and sand was struck at a depth of 695 feet, there being 12 feet of what is known as the gray sand. The well started off at 25 bbls. per day and kept that up for over a month.

"John Ware and his son, W. M. Ware purchased the well in 1873, getting it for not more than the materials that went with the well, and W. M. Ware commenced hauling the oil to Franklin, which he kept up for a number of years or until the pipe line was put through during the oil excitement in the Sugar Lake oil field.

"The well has been producing now for nearly 58 years and has been the property of the Wares for nearly 57 years and has been in the possession of William Ware for the past 35 years. The well is now producing over a barrel per day and has averaged over 2 bbls. during its long existence and perhaps 35,000 bbls. would be a conservative estimate of the amount of oil it has produced.

"The same casing, tubing and rods that were originally put in the well are still in use and they were second hand material when they were put in the well. One reason for their long service is, no doubt, due to the fact that the pipe is of iron, which was the material they used in those days instead of steel as at present."

ISAAC N. HINDERLITER DIES IN OIL CITY, PA.

OIL CITY, Pa., June 14.—Isaac N. Hinderliter, 84 years, who entered the oil business at the close of the Civil War, died at the family home here on June 11.

Mr. Hinderliter was born in Corsica, Pa., February 4, 1846. He was 15 years old when the Civil War broke out and enlisted as a drummer boy in Company C, 105th, Pennsylvania Volunteers. He served the duration of the war and then went to Oil Creek where he became a contractor, hauling crude oil from leases to the Oil Creek barges.

After a term in the mercantile business with Charles Shepard as a partner, he bought an oil property from George V. Forman in 1877 and for 30 years thereafter was a producer of oil.

He moved into Oil City and for a time was commissioner of streets, but took up contracting later, in which business he continued until 1918 when he retired.

Surviving him are two sons, Charles A. Hinderliter of Amarillo, Tex., and Frank J. Hinderliter of the Hinderliter Tool Works in Tulsa, and two daughters, Fanny and Daisy Hinderliter of Oil City.

The funeral was held under the auspices of Rutherford B. Hayes Post of the Grand Army of the Republic.

REFINERS MUST REDUCE RUNS OF CRUDE OIL

(Continued from Page 38)

force. In the past many proration figures for states have failed to take this factor into consideration. Under the circumstances, it is better to shoot at a daily production mark below what is actually needed for market requirements, with the probability that flush flow and other factors will almost certainly make up the deficit.

"Refining—Production, of course is only one side of the picture. For the first time the oil conservation board has officially emphasized the damaging effect of excessive refining activity on the industry, the consumer and the nation. The industry, too, is gradually coming to realize, in view of the higher cost of storing gasoline than of storing crude, that the excessive manufacture of motor fuel is even more detrimental to the public and to itself than the overproduction of raw material.

"The gasoline stocks carried over in the present year were 30 per cent higher than the carry-over in 1929. As was pointed out in the last issue of The Lamp, gasoline is an expensive commodity to store. It costs the refiner an average of approximately a cent a gallon, or 42 cents per barrel per year. The total storage bill for gasoline alone which the industry had to foot last year was nearly $14,000,000. The committee on petroleum economics very wisely, therefore, has based its recommendations for crude output and refinery runs upon the probable market demand for all products during 1930, less 5,000,000 bbls. of gasoline which it rightly believes should be taken from storage in order to relieve the present congestion.

Refinery Ahead of Requirements

"Whatever progress may have been made by the producer in bringing his output of crude more into line, the refinery is still running far ahead of the country's requirements as set forth in the economists' report.

"The committee sets a daily average run of 2,624,000 bbls. over the entire year as sufficient to meet the demand for finished products, taking into consideration the advisability of making a draft upon gasoline stocks in storage.

"For the first five months, refineries averaged 2,635,000 bbls. a day. It follows, therefore, that the refiner will have to restrict his runs to 2,617,000 bbls. daily for the last seven months of the year, or again pay the penalty of a further addition to his already straining storage tanks.

"On May 31 refineries were running at a rate of approximately 2,679,000 bbls. a day. Refining activity normally speeds up to a marked extent during the latter half of the year. Unless a marked change takes place, therefore, the last seven months will show an even greater excess run than the figures for the end of May.

"Another warning signal is the fact that gasoline consumption, as shown by Bureau of Mines statistics for the month of April has increased only 7.81 per cent over the same period in 1929, with the increase in domestic consumption even less, 5.56 per cent, to be exact.

"The industry has been handed a very efficient gauge stick. Production has shown promise of gradually coming into line. But unless the refiner cuts down his crude runs from the 2,679,000-bbl. rate of May 31 to the 2,617,000 bbls. necessary to maintain the committee's estimate of the daily average needed for 1930 market demand, the close of the current year may find the oil man with another 5,000,000 bbls. of gasoline for which he must find storage, instead of reducing 5,000,000 excessive stocks by 5,000,000 bbls., as common sense directs, and relieving himself of some part of an expensive and unnecessary burden."

TAX FILLING STATIONS ON CHAIN STORE BASIS

SHREVEPORT, La., June 16.—Three new taxes on gasoline are proposed before the current session of the general assembly. One is the administration bill, H. B. 365 (Ellender) proposing to add another cent to the gasoline tax making the levy 5 cents per gallon, the proceeds of this extra cent to be bonded for additional revenues for the state highway department. It is by no means certain the increase will be voted. Beside this proposal Mr. Morvant proposes in House Bill 492 to add still another cent to the gasoline tax for the benefit of the state school fund.

It is proposed in House Bill 449 (Ard and Dugas) to tax filling stations under the classification of chain stores contemplated in the "Chain Store Bill." This measure imposes a license tax upon "every person, firm or corporation or association engaged in the business of operating or maintaining in this State under the same general management, supervision or ownership one or more stores or mercantile establishments where goods, wares and/or merchandise are offered for sale at retail." The tax is graduated; $15 per year for the first store, $20 for the second store, $30 for the third, $40 for the fourth, and $50 for the fifth. From the sixth to the thirtieth inclusive the tax is advanced $50 for each additional store on which number the tax would be $1,300 and for each store in excess of 30 another $100 would be added.

OKLAHOMA BRIGHT STOCK PRICES LOWER

(Continued from Page 36)

tended to as high as 3,000 miles. This policy obviously has tended to reduce of quantity of oil consumed per car. This trend is borne out by government reports which have shown very little change in domestic consumption with a decrease in exports since the first of the year.

The net result of this enlarged supply and smaller demand has been a weak market. Few care to hazard a prediction as to where it will stop. It is felt that any recovery will have to start in Pennsylvania where a large number of small and large refiners specialize on the manufacture of lubricants. Efforts are now being made to curtail the production of Pennsylvania grade crude oil as the initial step in higher refinery prices.

Gasoline and Naphtha

With sales of the U. S. Motor gasoline to the trade as low as 6 cents the first of the week, no improvement in the general gasoline situation was apparent. Buyers continued to dominate the market with plenty of material offered them from refiners in all parts of the Middle West and Mid-Continent.

Prices are now down to the point where on previous occasions some effort was made to prevent further reductions. Many sales managers believe that gasoline prices for the immediate future have reached bottom with a possibility of improvement the first of the month. It is contended that the refinery market has already discounted the unfavorable features in the oil situation, including a possible crude oil price reduction and that the sellers should at least be able to prevent further declines during the two main gasoline consuming months of the year. Others will not even concede this small improvement over the present situation and are predicting lower prices in all the principal products.

It is impossible to give any accurate report on prices for high gravity material. A few refiners are not in a position to haggle over prices indicated in the fact that material with better than U. S. Motor specifications approaching the 60-62 400 endpoint grade, has sold as low as 6¼ cents.

The 390 grade was generally quoted at a low 6¾ cents, 375 at 7 cents and 350 and 360 endpoint from 7¼ to 7½ cents. Outside of the export shipments the demand for the higher gravities is slow. Naphtha prices have been reduced by most of the manufacturers with a price differential of 6¼ to 7 cents for the 50-52 450 endpoint grade.

Natural Gasolines

Despite some heavy buying during the week, natural gasoline prices are not holding their own. One large eastern refiner is reported to have purchased around 150 cars of Grade AA last week at a price of 5¾ cents. This was for immediate shipment to the Gulf Coast where the gasoline will be moved by boat to an East Coast refinery. A Gulf Coast refiner is also reported to have purchased 500 spot cars in addition to its regular contract movement. This order is for delivery over the month.

One large manufacturer who had been paying 6 cents for scattered shipments of Grade AA and another manufacturer who has been buying Grade BB at 5½ cents have withdrawn from the market.

Fuel Oil

The Chicago situation continues to figure in the Mid-Continent fuel oil market. The industrial demand for fuel oil normally centers in the Chicago area. The demand has been exceptionally slow for several months. The supply has increased from refiners in that section and with their large freight advantage over Mid-Continent operators, they have practically shut out the latter from participation in the market.

Fuel oil has been sold under 50 cents in Oklahoma although that figure is still representative of the low of the market for good material. Many refiners are dependent on a local demand. The higher gravities are not offered in large quantities in Oklahoma but prices are easy along with the other grades. A price of 85 cents is top for a 28-30 low cold test grade.

Gas oil is having a fair movement at a low of 2⅛ cents. The furnace oils grades were in demand especially on contracts.

Kerosene

A several hundred car order of kerosene would be welcomed by all refiners in the Mid-Continent. Price cutting is general in the domestic markets and it is believed that tank wagon prices will be reduced in the Middle West unless the tank car market improves. The 41-43 grade is available from numerous sources at 3¾ cents basis Group 3. The weakness centers in North Texas where distress material is offered at 3½ cents.

Lubricants and Wax

The situation in regard to bright stocks has already been explained. Steam refined stocks have been reduced from 1 to 3 cents a gallon. The demand for all stocks is slow. No changes were announced in neutral oil prices. The 124-126 wax is moving slowly at 2 to 2⅛ cents.

Ohio Oil Co. Core Drilling Big Block In Southern Nebraska

ALMA, Nebr., June 14.—Following the entrance of the Ohio Oil Co. into Nebraska, where the company has done considerable core drilling near Red Cloud, Webster County, and near this city which is in Harlan County, both counties bordering on the northern Kansas line, a number of other oil companies and private individuals have been leasing in the area between the two towns named. So far, according to Ohio Oil Co. officials, no oil showings have been found in the core drill tests. There is a deep well near Riverton, Franklin County, which showed salt water at 4,252 feet. Franklin County lies between Webster and Harlan Counties.

The Ohio Oil Co. has a large block of acreage in southern Nebraska and will make further core tests. The objective of the core tests is the Dakota sand which lies at about 800 feet in this part of the state.

IDAHO WANTS LOWER RATES

Reduction of freight rates on gasoline and petroleum products throughout the western territory has been asked by the Idaho public utilities commission in a complaint laid before the Interstate Commerce Commission. The Idaho commission declared itself empowered to represent the general public and particularly the shippers and consumers of petroleum products. "The present rate structure on gasoline and petroleum products," the complaint stated, "is unscientific and incoherent, resulting in rates unreasonably excessive." The federal commission was requested to reduce the rate charges after an investigation which would enable a determination of reasonable rate levels.

GULF PIPE LINE (OKLA.)

The Gulf Pipe Line Co. of Oklahoma submits the following statement of business in Oklahoma and Kansas in May: Runs, 1,759,117 bbls.; daily average, 56,746 bbls.; shipments, 1,982,355.79 bbls.; daily average, 63,947 bbls.; stocks at end of month, 8,210,958.20 bbls.

Standard Resumes Old Price Schedule In Santa Fe Springs

LOS ANGELES, Calif., June 14.—Four weeks to the day after it had reduced the posted price for crude oil at Santa Fe Springs the Standard Oil Co. of California restored the original price schedule, and in accordance with its policy will continue to maintain this price as long as operators continue curtailment work and conditions warrant.

Official Notice

The official notice states that "The Standard Oil Co. announces an advance in the price for crude oil at Santa Fe Springs of 75 to 90 cents a barrel, effective June 14. This restores the posted prices in effect prior to the reduction of May 17 and brings the prices offered in this field in line with those offered in other southern California fields."

The reduction in the price for Santa Fe Springs crude posted by the Standard on May 17 was of a disciplinary nature which the company deemed necessary because of the failure of operators in that field to curtail crude oil production to the allowable established by a general economic survey. During the 28 days which have elapsed between the price slash and the restoration of the original price schedule, satisfactory progress has been made in enforcement work. The major companies have been making a very determined effort to effect stabilization for the past several months and are hopeful of success in the future.

Weakened Gasoline Market

There has been a very marked weakening in gasoline prices during the past several weeks so that the present situation will require constant vigilance in order to prevent a general reduction, in which event crude prices would naturally reflect a sympathetic weakening.

Playa Del Rey Disturbs

The completion of additional wells at Playa Del Rey has released additional spot oil, which is beginning to manifest itself in the refined oil market. It is obvious that while none of the major companies are desirous of contracting Playa Del Rey crude, this policy must be changed in order to prevent this spot oil from demoralizing the general market. It is quite possible, therefore, that one or more pipe lines will be laid into the Playa Del Rey Field in the very near future.

The Ohio Oil Co. is laying its own line to the Standard Oil Co.'s El Segundo refinery, from which point the oil will either be sold to the Standard of California or moved out of the California market by tankers.

AUTOMOBILE PRODUCTION SHOWS A SHARP DECLINE

Automobile production for the first five months of this year was 1,970,849 cars, a decline of 31 per cent from the same period of last year, it was reported at the annual meeting of the National Automobile Chamber of Commerce in New York.

May production for the industry was given as 433,328 vehicles, a decrease of 7 per cent under April and of 32 per cent under May of last year. This figure was taken as indicating that manufacturers have been gearing output to dealers' requirements, as planned by most of the makers at the beginning of the year.

Sales of new cars were reported to be steadily increasing, following a record disposal of used cars which, it was said, had cleared dealers' stocks to make way for the present models.

Exports of American cars were placed at 75,401 in April, with a total of 270,165 for the first four months, a figure greater than had been generally expected. The decrease in truck production for the five months was reported to have been "very much less" than that of passenger cars.

DEMAND FOR OKLAHOMA CRUDE OIL 650,000 BBLS. DAY TO SEPTEMBER 30

The curtailment of production in flush Oklahoma fields will continue through the months of July, August and September. The attempt will be made to keep production down to 650,000 bbls. per day.

The statewide committee on proration met in conjunction with the W. C. Franklin committee on procedure on June 12, and examined reports on production and consumption of petroleum and its products and proceeded to examine the proration structure in Oklahoma with the view to outlining a reasonable plan for curtailment of output to approximate the reasonable market demands for Oklahoma crude during the third quarter.

Without argument, the committee was unanimously agreed that continuation of proration through the third quarter would be absolutely necessary. Most of the discussion was directed toward devising a plan that would be equitable as between the various pools in the State and avoid discrimination in favor of one pool as against another. The committee went over the entire ground with great care, considering the claims of each pool, the market outlet for each area, and all pertinent facts relating to the subject.

It was unanimously agreed that the shut-in time on drilling wells should remain as stated in the present existing order, and that the percentages of curtailment should remain approximately the same as now in force with only such changes as the changed conditions and outlook for the industry should require.

The committee agreed that the probable demand for crude oil from Oklahoma during the third quarter would be approximately 650,000 bbls. per day; that the percentages of potential production given below should be prescribed for the prorated areas outside of the Oklahoma City area and that, the demand being present, the Oklahoma City area should continue to receive as great an outlet as it has been enjoying under the present order, with sufficient flexibility to permit of an increase up to 25 per cent of potential in Oklahoma City if the demand develops to that extent.

The committee decided on the following table of potentials and allowable production for the three months of July, August and September, 1930, in the prorated pools, and submits the figures to the operators in the pools as a basis for agreement and, if agreed to, to be presented to the Corporation Commission at a hearing to be held for that purpose, with a view to obtaining an order putting the committee's suggestions into effect for that period:

Operators in the East Earlsboro and South Earlsboro Pools had agreed to the recommendations of the proration committee at the time this was written. Meetings of the producers in the other prorated fields were to be held later in the week, the last one to be held on Thursday.

Potential and Allowed Production by Pools in Prorated Areas (Except Oklahoma City), Based on 66⅔ Per Cent Allowed on All Pools Excepting East Earlsboro 33⅓ Per Cent, South Earlsboro 33⅓ Per Cent, Konawa and Asher 25 Per Cent.

	July		August		September	
Production allowed 66⅔%:	Potential	Allowed	Potential	Allowed	Potential	Allowed
Searight	14,235	9,490	13,808	9,205	13,394	8,929
Allen	18,433	12,289	17,880	11,920	17,880	11,920
Bowlegs	30,056	20,037	29,154	19,436	29,154	19,436
Carr City	11,252	7,501	10,814	7,209	10,490	6,993
Earlsboro (old)	29,585	19,723	28,698	19,132	27,838	18,559
Little River	48,907	32,605	47,440	31,627	46,017	30,678
Mission	15,714	10,476	15,243	10,162	14,786	9,857
Maud	6,262	4,175	6,074	4,049	5,892	3,928
Seminole	30,296	20,197	29,387	19,591	29,387	19,591
East Seminole	4,405	2,937	4,273	2,849	4,145	2,763
St. Louis	40,000	26,667	38,800	25,867	37,636	25,091
Allen (Wilcox)	7,000	4,667	6,650	4,433	6,300	4,200
East Little River	20,000	13,333	19,000	12,667	18,000	12,000
Lovell	6,000	4,000	5,820	3,880	5,645	3,763
Earlsboro Townsite	9,000	6,000	8,100	5,400	7,290	4,860
Sasakwa	10,800	7,200	9,720	6,480	8,750	5,833
Total	301,945	201,297	290,861	193,907	282,604	188,401
Production allowed 33⅓%:						
East Earlsboro	60,000	20,000	50,000	20,000	40,000	20,000
South Earlsboro	35,000	11,666	28,000	9,333	20,000	6,666
Total	95,000	31,666	78,000	29,333	60,000	26,666
Production allowed 25%:						
Konawa	60,000	20,000	40,000	19,000	30,000	15,000
Asher	16,000	4,000	12,000	3,000	12,000	3,000
Total	76,000	24,000	52,000	22,000	42,000	18,000
Wells not prorated	.....	10,000	.....	10,000	.....	10,000
Outside areas not prorated	253,000	253,000	260,000	260,000	260,000	260,000
Oklahoma City	500,000	130,037	600,000	134,760	600,000	146,933
Total State	1,225,945	650,000	1,280,861	650,000	1,244,604	650,000

Allowed production based on 650,000 bbls. per day. Proration schedule: Allowed percentage: Konawa and Asher, 25 per cent (adjusted); Oklahoma City, 25 per cent as minimum; East and South Earlsboro, 33⅓ per cent (adjusted); other Seminole area, 66⅔ per cent; outside areas, none.

INTERNATIONAL WORK IN COLOMBIA AND PERU

CHATHAM, Ontario, June 14.—An official statement issued by International Petroleum Co. of Toronto covers the company's operations in Peru and Colombia for April. In Peru 11 producing wells were completed with average initial production of 64 bbls. Crude production for the month was 873,374 bbls., and crude shipments 768,077 bbls. In Colombia ten wells were completed, with average initial production of 709 bbls. Crude production amounted to 1,646,047 bbls. and shipments totaled 1,439,253 bbls.

A review of Colombian operations for the first four months of 1930 shows 44 wells drilled with 654 bbls. average initial production, compared with 32 wells, averaging 795 bbls., in the same period of 1929. Crude production increased from 6,474,030 bbls. to 6,668,545; but shipments declined from 6,161,335 to 6,069,300 bbls.

In Peru 47 wells averaging 255 bbls. were drilled, compared with 37 wells averaging 143 bbls. in 1929. Crude production increased from 3,399,420 bbls. to 3,453,127; and shipments increased from 1,453,159 bbls. to 1,794,157.

FORM PRODUCTION CHAPTER

FORT WORTH, Tex., June 14.—As a preliminary to the organization of a field chapter of the A.P.I. Division of Production at a meeting at Wink, Winkler County, the following officers were chosen: H. S. McGary of the Humble Oil & Refining Co., chairman; W. W. Vietti of The Texas Company, vice chairman; W. F. Knode of the Shell Petroleum Co., secretary, and M. L. White of the Texon Oil & Land Co., treasurer.

MAGNOLIA GASOLINE LINE

Magnolia Petroleum Co. will complete by July 1 construction of its 31½-mile 3-inch gasoline pipe line which will run from its refinery at Fort Worth, Tex., to Dallas. The line will have daily capacity of approximately 2,500 bbls.

CHARLES GORDON, EARLY NATURAL GAS MAN, DEAD

Charles H. Gordon, 74, pioneer in the natural gas industry, died Saturday, June 14, in his home in Tulsa. Mr. Gordon, who was born in Elyria, Ohio, started work in the natural gas business in Van Buren, Ohio, in 1875, working for the Northwestern Ohio Natural Gas Co. He was employed in various capacities and from 1902 to 1904 he served as

Charles H. Gordon

transportation superintendent for the Hope Natural Gas Co., Pittsburgh, Pa., during which period he was associated with J. T. Braden and Dennis Hastings. In 1906, Mr. Gordon came to Tulsa to start construction of a 12-inch pipe line from Sapulpa to Oklahoma City and various other lines for Oklahoma Natural Gas Co. He served that company till 1921, then his health failed and he retired from active work.

Mr. Gordon was widely known throughout the Mid-Continent area. He leaves five sons and four daughters. Funeral services were held in Tulsa Monday, June 16, and the body was taken to Van Buren, Ohio, for interment.

FRANK P. PARISH HONORED

FORT WORTH, Tex., June 14.—A dinner in honor of Frank P. Parish, president of the Missouri-Kansas Pipe Line Co., was given by Capt. H. S. Lyons, resident southwestern manager for the company, at the Adolphus Hotel in Dallas, Wednesday evening, which was attended by 100 guests. Judge L. C. McBride and R. E. L. Saner, former president of the American Bar Association, were among the speakers.

F. F. GRAY INJURED

HOUSTON, Tex., June 16.—Frank F. Gray, head of the land department in the district office of the Humble Oil & Refining Co. at Corpus Christi, was fatally injured in an automobile accident near Taft. His wife and small child also were injured but not seriously. Mr. Gray, previous to the opening of the Corpus Christi office late in 1929, was in the Houston office.

BOOK REVIEW

The literature on methods of producing oil has been increased by the publication of the work of Wentworth H. Osgood, Lieutenant Commander United States Navy; Inspector, United States Naval Petroleum Reserve, No. 3, entitled: "Increasing the Recovery of Petroleum." There are two volumes of this first edition which has been published by McGraw-Hill Book Co., New York City, $10 complete.

Henry Clay Folger, Former President of N. Y. Standard, Dies

NEW YORK, June 14.—Henry Clay Folger, a former president of the Standard Oil Co. of New York, died here this week following an operation at St. John's Hospital, Brooklyn. He was 72 years of age.

Mr. Folger was born in New York, a son of Henry C. and Eliza J. Clark Folger. After graduation from Adelphi College, Brooklyn, he entered Amherst, where he received the degrees of Bachelor of Arts and Master of Arts in 1879 and 1881, respectively. On July 1, 1879, he entered the oil business as a clerk in the office of Charles Pratt & Co., in Brooklyn. Without giving up his clerkship, he began the study of law at Columbia University and two years later the degree of Bachelor of Laws, cum laude, was conferred on him.

Henry Clay Folger

He held various positions with the Standard Oil Co. of New York and finally became president of the company and chairman of the board, resigning the latter position two years ago. He continued a member of the board to the time of his death.

Mr. Folger attained fame as a Shakesperean collector, and for the past two years has devoted himself to the further development of his Shakespeare collection and his plans for rendering it perpetually available to students. His interest in Shakespeare began when he was at Adelphi College and the later work of gathering and arranging his library was always for him, as for his wife, a labor of love. There is little doubt, authorities declare, that the Folger collection of some 25,000 volumes, is the finest in the United States. In extent it rivals that of the British Museum. In 1919 Mr. Folger paid the Rosenbach Co. of Philadelphia $100,000 for the unique Gwynn volume of nine plays, published in 1619.

Mr. Folger wrote many monographs on Shakespeare. For his achievements as a collector and authority on Shakespeare he was made a Doctor of Literature by Amherst in 1914. He was a member of the Groller Club, Nassau Country Club, and Alpha Delta Phi Fraternity.

Two years ago announcement was made that Mr. Folger would erect in Washington on grounds in the rear of the Library of Congress a building to house his collection, and would make an endowment for its maintenance and development.

GEORGE TOMLINSON DIES

CHATHAM, Ontario, June 14.—George Tomlinson, Sr., died recently at St. Mary's, Ontario, aged 69. In the eighties he was well known as a driller in the Ontario fields.

Late Fields

(Continued from Page 48)

production test and made 10 bbls. an hour against a back pressure of 800 pounds. The gas was estimated at 10,000,000 feet. The top of the chat was at 2,918 feet and the pay at 2,956-57 feet.

CALIFORNIA

LOS ANGELES, Calif., June 17.—The General Petroleum successfully finished No. 2 Ochsner in the North Dome of the Kettleman Hills flowing 4,500 bbls. of 54 gravity oil and 100,000,000 feet of natural gas per day from 7,691 feet. This is the first well at Kettleman Hills to produce a black oil, previous completions yielding a 60 gravity white condensate containing over 85 per cent gasoline. It is the present belief that the General Petroleum has opened up a real oil zone below the present high pressure gas horizon. This new well has been killed in conformity with the Kettleman Hills agreement which contemplates a reduction of drilling and production activities until July 1 of next year.

OKLAHOMA

The Indian Territory Illuminating Oil Co.'s No. 2, in the NW cor. SW NW, Section 23-6-3, Pottawatomie County, was bailing and was expected to make a production test from sand at 3,458-61 feet.

The production from the South Earlsboro Pool, on the gauge of June 17, was 15,158 bbls. from 23 wells, under proration. The Eason Oil Co.'s No. 1 Wolf, NE cor. NW, Section 22-9-5, was shot with 10 quarts in the Wilcox sand at 4,349-59 feet, and flowed 900 bbls. in 12 hours. Robert Burns and others' No. 1, in the NW cor. SE NW, Section 8-9-5, in the townsite of Earlsboro, swabbed 239 bbls. in 21 hours from the Wilcox at 4,356-69 feet.

The Wirt Franklin Petroleum Corp.'s No. 4 Theimer, NE cor. SE SE, Section 2-11-3w, in the north end of the field, flowed 745 bbls. of oil the first hour and 8,986 bbls. the first 14 hours. The oil was found in sand at 6,390-6,487 feet.

Sinclair Oil & Gas Co.'s No. 6 Vincl, SE cor. NW SE, Section 31-11-2w, was still blowing wild Tuesday, June 17. The high pressure of the gas and sand cut the connections and damaged the master gates so they could not be closed to shut in the well. The gas was blowing straight in the air but the other operations in the south end of the field were shut down.

The wildcat north of Britton, the Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 1 Dills, SE cor. NW, Section 17-13-3w, had the top of the Viola lime at 6,459 feet, and was drilling in the Sylvan shale at 6,492 feet. The Simpson sand series is expected in a few more feet and some express the opinion the test may make a producer in the Wilcox sand or Silicious lime.

The second well completed in the new pool west of Perry in Noble County by the Magnolia Petroleum Co. was its No. 4 Sams, SE cor. SW SW, Section 15-21-2w. The Wilcox sand was found at 5,140 feet, and the pay at 5,169-72 feet. It swabbed 250 bbls. in 12 hours.

Magnolia Petroleum Co. had a showing of oil at No. 1 Henry, SW cor. NE NE, Section 17-14-4, Lincoln County, in the west Chandler Pool. The showing was found at 4,608 feet, the large gas volume threatened to blow out before the hole could be loaded with heavy mud.

NORTH LOUISIANA-ARKANSAS

SHREVEPORT, La., June 16.—Hope Production Co. has completed the largest well the Monroe gas field has produced in the 15 years of its active history in bringing in No. 2 Fairbanks, Section 25-20-4, Ouachita Parish, in the heart of the field's proven area, which embraces parts of Ouachita, Morehouse and Union Parishes. It is a "Second sand" well, bottom of the hole at 2,301 feet being approximately 150 feet below the average depth of the original producing horizon, and initial open flow approximates 53,500,000 feet at 1,100 pounds. The previous record holder was an Upper sand well, United Oil & Natural Gas Co.'s No. 3 Guthrie, Section 50-20-4, completed in February, 1927, gauging 43,500,000 feet, total depth 2,143 feet. The new producer is the first of any size the Second sand has developed since exploration, which has not been to any considerable extent, began about a year ago, and most of the completions in which have been either dry or salt water.

NORTH TEXAS AND PANHANDLE

FORT WORTH, Tex., June 17.—Mid-Tex Oil Co.'s No. 1 Windham, in Section 370, G. W. Denton Survey, southwestern Callahan County, Ranger district, flowed 125 bbls. the last 24 hours while agitating and swabbing. Total depth 4,351 feet; top pay 4,349 feet.

FRANKLIN COMMENTS ON FEDERAL BOARD REPORT

In an open letter addressed to Dr. Ray Lyman Wilbur, chairman of the Federal Oil Conservation Board, in regard to the fourth report of the board, recently released, Wirt Franklin, president of the Independent Petroleum Association of America states:

"In the recently released Fourth Annual Report of the Federal Oil Conservation Board I note that the board arrives at the general conclusion that there was 'overproduction of crude oil in the United States in 1929.'

"In as much as the Independent Petroleum Association of America, in its recent presentation to Congress of the facts relating to domestic production showing the necessity of a tariff on oil, made a showing which cannot be successfully contradicted that there has been no overproduction of crude oil in the United States and no oversupply thereof, if imports are not taken into consideration, I beg to submit to you data from reports of the United States Bureau of Mines and of Foreign and Domestic Commerce. Taking these data into consideration, while there may have been an oversupply in 1929 due to imports of foreign oil, it is an incontrovertible fact that there was no actual overproduction in the United States, the curtailment program in the several flush producing areas of the United States having been so successfully carried out by co-operation of large and small producers alike as to bring about a balance between domestic production and demand for oil products. In fact, in a number of areas during the latter part of 1929, although potential production in these areas was very high, this co-operative movement was so successful as to necessitate the taking of a considerable volume of crude oil from storage to supply the demand.

"Production of crude oil in the United States in 1929 was approximately 1,005,000,000 bbls. Demand for crude oil was made up of refinery runs 987,000,000 bbls., export 26,000,000 bbls., and other domestic uses 22,000,000 bbls. This makes a total demand of 1,035,000,000 bbls. thereby creating a shortage of 30,000,000 bbls. Crude imports of 79,000,000 bbls. in 1929 turned this actual shortage into a claimed overproduction.

"Our association further claims that from the beginning of 1918 to the end of 1929 the United States produced approximately 600,000,000 bbls. less crude oil than the total demand and that imports of approximately 950,000,000 bbls. is the major cause of the 350,000,000-bbl. increase in stocks within this 12-year period.

"If our contention is wrong will you kindly show us wherein we err?"

GYROSCOPE INVENTOR DIES

NEW YORK, June 16.—Elmer Sperry, inventor of the gyroscope, died today at St. John's Hospital. In addition to the gyroscope, he invented the gyrocompass airplane and ship stabilizer, high intensity searchlight, compound internal combustion engine, fire control apparatus and numerous special devices, many for the United States Navy.

PENN-YORK BUYS 525 ACRES OF OIL LEASES

OLEAN, N. Y., June 14.—The Penn-York Oil Corp., being organized by a group of Olean and Buffalo men, yesterday announced the purchase of 525 acres of producing oil land in the Bolivar district of Allegany County. The company has under consideration other lands on this side of the state line.

More than 60 wells have already been drilled on the property just acquired and have been under natural production for about 40 years. It is planned to use the five-spot method of water flooding in a conservative way to develop the property under pressure.

Operating offices of the company will be maintained in Olean with M. M. Fulkerson, Olean, president, in active charge. Other officers are Albert Dodge, Buffalo, vice president; Henry Stratemeier, Hamburg, treasurer; Herbert A. Meldrum, Buffalo, secretary.

Additional directors are Thomas H. McElvein, George T. Kloepfer, Lawrence Bley and Henry P. Bronkie, of Buffalo; Charles H. Weber, Pittsburgh, and Charles J. Duve, Olean.

GULF COAST MARKETS ARE SLIGHTLY EASIER

HOUSTON, Tex., June 17.—A slightly easier tone in fuel oil on the Gulf Coast at the opening of the week, and in gasolines an increasing weakness was felt which was reflected in softening of quotations. Gas oils and lubricating oils were unchanged over the preceding week.

The greatest weakness in the general refinery market Tuesday was in gasolines which were being quoted freely around 7¾ to 8 cents for tank car movement. The export demand at this time is very slow and no relief from that score for the heavy stock situation is expected. So far there has been no reduction in the Gulf export posting.

The easing up in fuel oils was evident only in the appearance of more offerings of material. This market for some time has been extremely tight, with very little material available at any price. With the opening of this week sellers were found to have a little supply, which they were ready to place on the market. Quotations for cargo material, bunkering and smaller lots remained strong and it is the general opinion that the prices are as low as they will be on the present crude structure. Pale and red oils continued steady not only in prices but also in volume of business. For several months these products have continued virtually stationary as far as trends have been concerned.

L. O. WHYMAN DIES

L. O. Whyman, for many years scout for the Empire Gas & Fuel Co., and for the past few years located in San Antonio, Tex., died recently at his home in San Antonio. He was one of the best known scouts in Texas.

BUYS WOLVERINE STATIONS

The Cities Service Oil Co. of Michigan has purchased 23 Lansing service stations formerly owned and operated by the Wolverine Oil Co., of Lansing.

In addition to the service stations the deal includes the purchase of a bulk plant and warehouse with other minor holdings of the company. The transaction involved about $500,000.

The Cities Service Oil Co. of Michigan is headed by C. A. Shierson with headquarters at Adrain, district offices at Detroit and Grand Rapids and about 250 stations in operation throughout the State.

VACUUM-SOCONY HEARING

NEW YORK, June 16.—A tentative hearing of testimony concerning the proposed Standard Oil Co. of New York-Vacuum Oil merger has been set for June 30 in the Federal Building here. Hearing of testimony under the court order must be completed by September 10.

Unaffected by Hydrogen Sulphide—immune to Corrosion by Salt Water

Allegheny Metal is immune to action by these most prevalent corrosive agents in the oil industry. This alloy has dozens of refinery applications.

THE FIRM that bought this condenser needed a metal to withstand corrosion. Allegheny Metal was specified. This alloy and the Ascoloys are saving money every day in oil refineries.

These alloys save money because they bar the corrosion that slows production—the corrosion that sometimes causes shutdowns.

Refiners specify the Allegheny Alloys for tubes in cracking stills, heat exchangers and condensers, for bubble caps and trays, for linings in vessels, for valve trim and dozens of other uses.

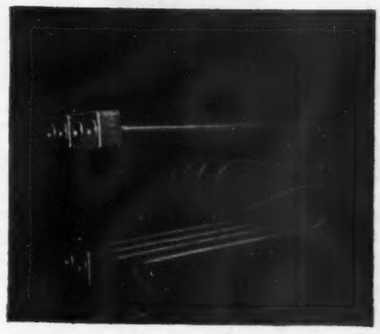
When you need an alloy that is noncorroding when used in normal refinery applications, that is stronger than mild steel—specify Allegheny Metal. When you need a metal to withstand progressive corrosion where surface discoloration does not matter, ask for Ascoloy 33. For heat resistance up to 2100° F., Ascoloy 44 will be easy to fabricate and will work well. For simple fabricating and extreme heat resistance (2150° F.) Ascoloy 55 is best.

These Allegheny Alloys are fast replacing old, inefficient metals that oil refiners have put up with for years. These alloys withstand all but a few corrosive agents. Even at high temperatures and pressures, they bar corrosion effectively . . . their surface remaining intact.

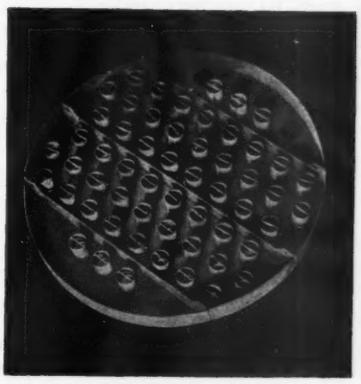
Call on our nearest office when you have a corrosion condition that must be handled efficiently. Ask for information about the Allegheny Alloys, writing in detail about your problem. Let us tell you how these alloys will reduce your costs and improve production.

ALLEGHENY STEEL COMPANY

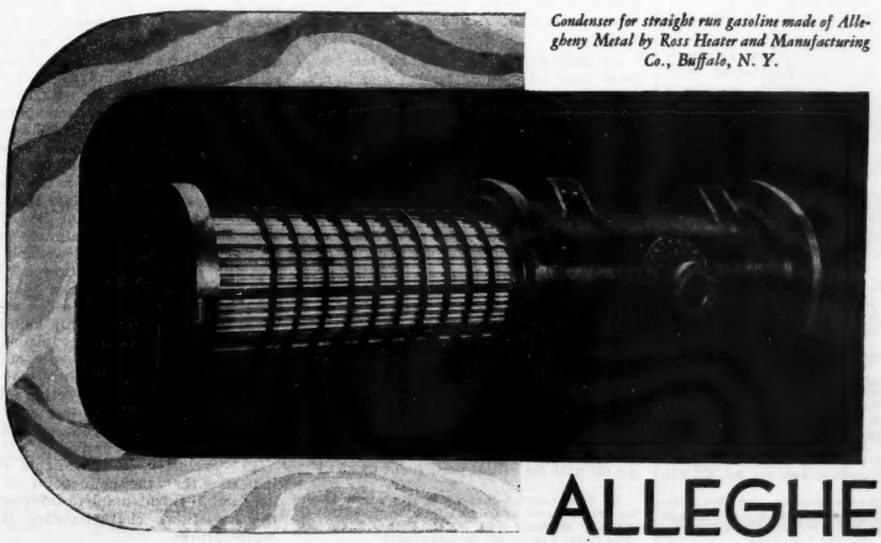
Brackenridge, Pa. . . *Offices:* New York, Buffalo, Chicago, Cleveland, Detroit, St. Louis, Milwaukee, Los Angeles. *Warehouse Stocks:* Joseph T. Ryerson & Son, Inc.—Chicago, Cleveland, Milwaukee, St. Louis, Cincinnati, Detroit, Buffalo, Boston, Jersey City, Philadelphia . . . In Canada: Samuel & Benjamin, Ltd., Toronto.



Corrosion is barred in superheating tubing made of Allegheny Metal for refinery work by Pittsburgh Producers Supply Co., Pittsburgh, Pa.



Hydrogen Sulphide cannot destroy still parts of Allegheny Metal. Made by Pittsburgh Producers Supply Co., Pittsburgh, Pa.



Condenser for straight run gasoline made of Allegheny Metal by Ross Heater and Manufacturing Co., Buffalo, N. Y.

Allegheny METAL

ALLEGHENY ALLOYS

Of Interest to Sales Departments

Gasoline Demand Shows 7 Per Cent Increase in March

Gasoline consumption in 43 states for the month of March, 1930, as indicated by reports made by wholesalers and dealers in the various states, under provisions of the gasoline tax laws or gasoline inspection laws, totaled 804,719,000 gallons, compared with 751,243,000 gallons in March, 1929, an increase of 53,476,000 gallons, or 7.1 per cent. Daily average consumption for March, 1930, was 25,959,000 gallons, compared with a daily average of 23,768,000 gallons in February, 1930, an increase in daily average during March of 9.2 per cent.

Gasoline consumption in these 43 states, for the three months ending with March, 1930, amounted to 2,138,994,000 gallons, compared with 1,915,579,000 gallons for the corresponding period of 1929, an increase of 223,415,000 gallons, or 11.7 per cent.

Consumption during January and February, 1930, for the State of Maryland is also shown, as are figures for March for the States of Illinois and New York.

The figures giving the quantity of gasoline sold or offered for sale, as reported under various laws follow. In some cases they are gross figures before deductions allowed for small quantities of gasoline reshipped or sold for other than taxable use the tax upon which, if paid, is subsequently refunded. All figures, which are subject to revision, were compiled by the American Petroleum Institute.

GASOLINE CONSUMPTION BY STATES, MARCH, 1930

	Month of Mar., 1930 (gallons)	Month of Mar., 1929 (gallons)
Alabama	14,128,000	13,364,000
Arizona	6,393,000	5,790,000
Arkansas	9,684,000	8,335,000
Colorado	12,821,000	13,668,000
Connecticut	16,461,000	12,972,000
Delaware	2,801,000	2,598,000
District of Columbia	6,069,000	5,544,000
Florida	22,724,000	22,349,000
Georgia	17,601,000	16,793,000
Idaho	3,702,000	2,857,000
Indiana	35,984,000	37,608,000
Iowa	31,131,000	26,129,000
Kansas	31,003,000	27,511,000
Kentucky	12,394,000	10,700,000
Louisiana	15,089,000	13,436,000
Maine	4,614,000	3,863,000
Massachusetts	36,241,000	32,765,000
Michigan	56,490,000	73,729,000
Minnesota	27,353,000	23,168,000
Mississippi	*11,302,000	10,610,000
Missouri	34,761,000	27,860,000
Nebraska	19,009,000	29,252,000
Nevada	1,179,000	1,222,000
New Hampshire	3,219,000	2,623,000
New Jersey	39,841,000	34,067,000
New Mexico	3,949,000	3,042,000
North Carolina	18,484,000	18,474,000
North Dakota	6,074,000	6,319,000
Ohio	73,744,000	69,720,000
Oklahoma	27,015,000	23,595,000
Oregon	13,471,000	11,464,000
Rhode Island	6,590,000	5,022,000
South Carolina	9,605,000	9,364,000
South Dakota	9,622,000	7,156,000
Tennessee	15,574,000	13,115,000
Texas	65,181,000	59,521,000
Utah	4,126,000	3,691,000
Vermont	2,114,000	2,238,000
Virginia	16,655,000	14,440,000
Washington	21,448,000	19,664,000
West Virginia	8,811,000	7,752,000
Wisconsin	27,955,000	21,432,000
Wyoming	2,307,000	2,421,000
Total	804,719,000	751,243,000
Daily average	25,959,000	24,234,000
Increase over previous year:		
Amount of increase	53,476,000	.....
Percentage increase in daily average	7.1%	.....
New York	104,205,000	
Illinois	68,967,000	
	Feb., 1930	
Maryland	10,701,000	

	Quarter ended Mar. 31, 1930	Quarter ended Mar. 31, 1929
California	295,461,000	287,770,000
Montana	9,032,000	8,695,000
Pennsylvania	204,100,000	147,931,000

*Estimated.

DEMAND FOR ASPHALT ESPECIALLY ROOFING GRADE HAS STEADY GAIN

Improved domestic demand, especially for roofing asphalt, was met by larger refinery production of petroleum asphalt in 1929 than in 1928, or even in 1927, according to statistics compiled by A. H. Redfield of the United States Bureau of Mines, Department of Commerce. The tonnage of petroleum asphalt sold at refineries was larger, but prices were lower, and the values realized were slightly less in 1929 than in 1928. Stocks of petroleum asphalt held at the refineries increased in quantity during the year, but their ratio to the indicated domestic demand was lower on December 31 than on January 1. Imports, chiefly of lake asphalt, were only slightly larger in 1929 than in 1928. Exports were slightly less than in the preceding year, and their ratio to the total sales, domestic and foreign, decreased somewhat.

The refinery production of petroleum asphalt, exclusive of road oil, in 1929 exceeded that of 1928 by 14.3 per cent, and that of 1927, the year of maximum production, by 6.3 per cent. From 3,817,539 shorts tons in 1927 and 3,548,527 tons in 1928, it increased to 4,057,227 tons in 1929. The principal gains took place in the East Coast district, which produced 1,691,653 tons in 1928, and 1,923,378 tons in 1929; in the Indiana-Illinois district, which produced 418,681 tons in 1928 and 688,842 tons in 1929; in the California district, which produced 620,080 tons in 1928, and 659,226 tons in 1929; and in the Gulf Coast district of Texas, which produced 207,700 tons in 1928 and 216,336 tons in 1929. At the same time the output of the refineries of coastal Louisiana, near New Orleans and Baton Rouge, decreased from 562,300 tons in 1928 to 459,149 tons in 1929.

The following table shows the production and value of the several grades of asphalt:

PETROLEUM ASPHALT SOLD AT REFINERIES IN THE UNITED STATES, 1928-1929
Solid and Semisolid Products of Less Than 200 Penetration

Asphalt for:	Quantity (short tons)	Value (selling price at plant)	Qantity (short tons)	Value (selling price at plant)
Paving	1,549,354	$21,271,309	1,569,858	$19,462,460
Roofings	945,573	12,015,469	1,161,621	12,468,429
Waterproofing	336,369	3,801,226	105,441	1,371,717
Mineral rubber	21,674	306,426	25,324	317,871
Briquetting	(*)	(*)	65,135	696,707
Mastic and mastic cake	(*)	(*)	1,789	30,081
Pipe coatings	(*)	(*)	12,782	199,861
Molding compounds	(*)	(*)	2,279	24,995
Miscellaneous uses	174,751	2,122,678	209,105	1,204,724
Total	3,027,721	$39,517,108	3,153,334	$35,776,851
Semisolid and Liquid Products of More Than 200 Penetration				
Flux for:				
Paving	127,177	$2,144,663	185,256	$2,750,692
Roofings	266,291	3,017,085	414,983	3,792,112
Waterproofing	245	10,236	22,515	225,776
Mastic	(*)	(*)	82	678
Cut-back asphalts	(*)	(*)	129,695	1,674,246
Emulsified asphalts and fluxes	(*)	(*)	14,810	181,264
Paints, enamels, japans, lacquers	(*)	(*)	210	6,654
Other liquid products	150,440	1,579,454	120,175	821,680
Total	554,553	$6,751,438	887,726	$9,453,102
Grand total	3,572,274	$46,268,546	4,041,060	$45,229,953

*Not separately specified.

OPINIONS VARY AS TO POURPOINT PROPERTY

By Ronald Bulkley
Bureau of Standards*

The idea seems no longer tenable that the chief significance of pour point is as an index of the torque required for starting an engine. Recent tests of Becker and Bauer[1] confirm the earlier conclusions of Dubois[2] and of Wilkin, Oak and Barnard[3] that paraffin base oils far below their pour point do not necessarily require a prohibitively high starting torque. The very important consideration yet remains, however, as to the possibility of screens and small feed pipes becoming clogged by an oil below its pour point, and permitting the accomplishment of serious damage before circulation has been established.

The pumping tests of Becker and Bauer showed that an oil with a pour point of 30° F. could be delivered to a bearing at a temperature 15° F. below its pour point, but these tests were presumably made on worked or stirred oil and not on oil in the original congealed condition which would obtain in pipe lines under initial starting conditions. Tests at the Bureau of Standards[4] show that the initial resistance to flow of an undisturbed oil below its pour point may be 100 per cent higher than for the same sample at the same temperature after a small amount of stirring or mechanical working.

At 210° F. and at 100° F. the high pour point oil used by Becker and Bauer had the higher viscosity, but the extrapolated viscosity of the low pour point oil was 75 per cent higher than that of the high pour point oil at the pour point of the latter, namely 30° F. At 10° F. the extrapolated viscosity of the low pour point oil was 100 per cent higher than that of the high pour point oil. Notwithstanding these facts, the former oil was delivered in suitable quantity by the pump at 10° F., whereas the latter was not delivered at all below 15° F. This seems then to be one instance at least where high pour indicated relatively high resistance to pumping, even for the worked or completely broken-down oil.

Correlation of Data

That such a correlation may not always be possible seems to be brought out by some recent tests conducted at the Bureau of Standards. These tests were made on an oil with an initial pour point of 35° F., and the purpose was to determine the effect of crankcase dilution on the pour point. The surprising result was that the oil diluted with 15 per cent of Stoddard solvent was still found to have a pour point of 35° F., and even with 20 per cent dilution the pour point was reduced to only 25° F. It was found that the oil containing 15 per cent diluent started to flow from its congealed condition at much lower pressures than the undiluted oil of the same pour point. It was also found that the diluted oil flowed much more readily than the undiluted oil after breakdown by mechanical working.

Another important feature is the fact that many oils below their pour point, even when maintained at a constant temperature, continue for many hours to get stiffer and stiffer. Tests made on an engine after five or six hours of cooling may give results which are not at all applicable to the same set-up after 48 hours of cooling. It is not known whether there is any connection between this behavior and pour point.

In conclusion, the available evidence indicates that the pour point of an oil does not furnish complete information as to its flow characteristics at low temperatures.

*Paper read before the petroleum technologists of the National Petroleum Association at Bureau of Standards.

[1]Laboratory Testing of Motor Lubricants and Gasoline Under Summer and Winter Conditions, A. E. Becker and W. C. Bauer; presented to Pennsylvania Section of S.A.E. at Elizabeth, N. J., October 9, 1929.

[2]Discussion of paper by Wilkins, Oak and Barnard; R. N. Dubois, Journal S.A.E., Vol. 23, pp. 381-382, 1928.

[3]Motor Oil Characteristics and Performance at Low Temperatures, R. E. Wilkin, P. T. Oak and D. P. Barnard, fourth, Journal S.A.E., Vol. 22, pp. 213-220, 1928.

[4]A New Consistometer and Its Application to Greases and to Oils at Low Temperatures, Ronald Bulkley and F. G. Bitner, Journal Rheology, Vol. 1, pp. 269-282, 1930.

PREPARE NEW RULES TO GOVERN TANK CAR VALVES

A joint committee representing the American Railway Association, American Petroleum Institute and American Railway Car Institute, meeting last week at Lafayette, Ind., agreed upon a set of rules to govern the submission to and testing of tank car dome covers, safety valves and bottom outlet valves by the engineering experiment station at Purdue University. The tentative draft of the rules will be submitted to the American Railway Association in the near future.

The committee, organized some years ago, conducted tests, chiefly on bottom outlet valves, during 1927 on apparatus set up at Philadelphia. This apparatus now has been placed in commission at Purdue University for use in continuing the investigation and testing such valves and devices as inventors may submit.

A. E. Smith, Union Tank Car Co., Chicago, is chairman of the joint committee.

CITIES SERVICE TERMINALS

NEW YORK, June 16.—Cities Service Refining Co. has opened a new terminal at Halifax, Nova Scotia, an initial shipment of 1,285,000 gallons of gasoline having just been made to Halifax by barge. The terminal is in Bedford Basin, above the narrows in Halifax Harbor. The Halifax terminal will be used as a base from which tank cars and trucks will carry gasoline to 15 tank stations and some 60 truck stations in Halifax of the Irving Oil Co., Ltd.

Cities Service Refining has also opened a large bulk terminal at St. John, New Brunswick, to serve the province of Nova Scotia.

T. & P. PURCHASES STATIONS

The Texas Pacific Coal & Oil Co. of Fort Worth, Tex., has completed purchase of most of the bulk and filling stations of the Central Texas Refining Co. The price was reported to be more than $300,000. The purchase was made from R. L. Wheelock, receiver of the Central Texas company. All of the properties of that company except those in the vicinity of Corsicana, Valley Mills, Dallas, Cleburne and Brownwood were transferred. They are located in some 18 towns.

NEW BILL TO REGULATE LEASING IN LOUISIANA

SHREVEPORT, La., June 16.—Representative O'Bannon of Claiborne has introduced a bill to regulate the leasing of oil and gas lands in Louisiana. The outstanding features of the bill are that it permits deevlopment of oil or gas lands on the approval of seven-eighths of those owning royalties or mineral rights. The text of the bill follows:

"An act to encourage the production of minerals, by regulating the leasing of lands for the production of oil, gas or other minerals, and defining the terms 'royalty,' 'royalty interest,' 'royalty right' and regulating their force and effect.

"Section 1—Be it enacted by the legislature of Louisiana, that, in order to encourage the production of minerals in this state when the lessee of any land for the production of oil, gas, or other minerals, procures a lease to drill or develop any lands, signed by the party or parties owning seven-eighths of more of the minerals on, or under such lands said lessee shall have the right to proceed to develop the said land for the production of such minerals as may be covered by the contract of lease and to pay to all the owners of such mineral rights such part of the royalty as each such owner's respective interest in the minerals bears to the whole.

"Section 2—That where any person or persons own one-eighth interest or less in all of the oil, gas or other minerals, in and under such land under lease, and such person or persons shall sign each lease, he or they shall be entitled to his or their pro rata share of all cash or other bonus moneys or rentals paid or due under such lease; provided, that if such person or persons do not sign such lease, he or they shall not receive any part of the cash or other bonus or rentals paid for such lease, but shall receive his or their just proportion of the moneys accruing as royalties.

"Section 3—That where any person or persons own any mineral rights attaching to any land in this state, his rights shall be prescribed in 10 years provided such prescription shall be extended during the period of actual production of any mineral from such land or during the term that any lease of such land for the production of such minerals which has been made under this act remains in force and effect; provided, further that such prescription shall not run as to royalty interest as herein defined.

"Section 4—That the term 'mineral right' or 'mineral rights' is defined to mean any right in or to such minerals which, but for this act, would entitle the holder thereof to a portion of the royalty from such production or the cash bonus or rentals paid on such lease and require his consent, that the term 'royalty' or 'royalty interest' is defined to mean any right in or to such minerals which entitles the owner to share in such production as his interest appears of record, but does not enttile him to share in the cash or other bonus or rentals paid for such lease or does not, but for this act, require his consent to such lease.

"Section 5—That where one person purchases from another royalty interest only and it is specified as such in the contract, it shall not be necessary for such royalty owner to sign any mineral lease of such lands, and no prescription shall run against any such right."

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 56)

Dingman Drilling Co.'s No. 7 C. N. Cassin, 625 ft. from W line, 900 ft. from S line of 10,000-ac. tract in the J. M. Urriegas Sur., 5 miles SE from San Antonio ..... T. D. 1,561 ft.; dry and abandoned.

CALDWELL COUNTY

Brousche & Wilson's No. 1 Riddle, 150 ft. from SW line, 600 ft. from SE line of Addison Luton Sur., 8 miles NE from Lockhart ..... T. D. 1,810 ft.; drlg. in shale.

W. E. Allaun's No. 1 Cosey, SW cor. of tract ..... Location.

Keen & Malcolm's No. 1 Mollie McNeal in the George Kimball Sur., 2,500 ft. W line, 860 ft. N line, 1 mile S from old Luling Field ..... T. D. 2,430 ft.; shut down in Edwards; old well reinstated.

COLORADO COUNTY

Penn Oil Co.'s No. 1 H. C. Wilson, 450 ft. from W line, 450 ft. from E line of 50-ac. tract in the John McCrosky Sur., 5 miles E from Columbus ..... Derrick.

DEWITT COUNTY

Gibson & McIntyre's No. 1 William Van Roeder ..... T. D. 1,480 ft.; shut down.

Republic Prod. Co.-Simms Pet. Corp.'s No. 1 E. T. Clark 778-ac., 1,450 ft. from SE line, 7,500 ft. from SW line of tract in the Jose Santos, 4 miles S from Yorktown ..... T. D. 4,673 ft.; abandoned, dry.

Louisiana Oil & Ref. Co.'s No. 1 William Kleavermann 100-ac., 400 ft. out of the NE cor. of tract, 3 miles SW of Nordheim near Karnes County line in the Robert Gallettry Sur. ..... T. D. 3,165 ft.; drlg. in black shale and sand.

Russell & Slick's No. 1 G. W. Weisgarver, 619 ft. N line, 1,200 ft. E line of 125-ac. farm in W cor. of county in the W. M. Lytle Sur. ..... T. D. 1,280 ft.; sand 1,274-80 ft.; testing.

H. T. Roe's No. 1 Leinhardt ..... T. D. 2,215 ft.; working over rig.

DUVAL COUNTY

T. W. Callahan and W. M. Howard's No. 1 J. M. Luby, 3,960 ft. N line, 3,960 ft. W line Sur. 24 ..... T. D. 2,873 ft.; drlg.

Southern Crude O. P. Co.'s No. 1 John Dinn, 3,450 ft. S line, 119 ft. W line of Sur. 480 ..... T. D. 4,002 ft.; abandoned.

Putnam & Walsh's No. 1 Hagist, 570 ft. N line, 150 ft. E line, Blk. 5, Sur. 269 ..... Rigging up.

EDWARDS COUNTY

Phillips Pet. Corp.'s No. 2 A. G. Holman, 330 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25 ..... T. D. 3,656 ft.; drlg. in lime.

FAYETTE COUNTY

Muldoon Oil Co.'s No. 1 J. A. Kerr, 2,900 ft. from S, 3,250 ft. from W of M. Muldoon Sur., 2 miles W of Muldoon ..... T. D. 3,112 ft.; drlg. in sandy shale.

Hoffer-Stanton's No. 1 M. E. Manton, 700 ft. from N line, 275 ft. from E line 102-ac. tract in the W. H. Taylor Sur., 8 miles NE from Muldoon ..... Drlg. 1,580 ft.; shut down.

GOLIAD COUNTY

Humble Oil & Ref. Co.'s No. 1 Lackey & Weldon, 2,000 ft. from SE and SW lines of the Lackey & Weldon 1,000 ac. tract out of the most SW cor. thereof, in the Javiano Gomez Sur. ..... T. D. 4,421 ft.; dry and abandoned.

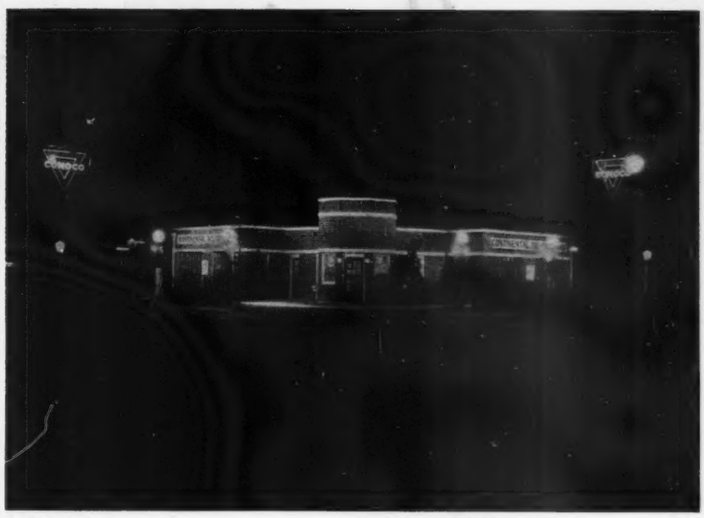
Dr. Hewitt et al's No. 1 Roy, 200 ft. each way out of SW cor. of B.&B. Sur. ..... T. D. 300 ft.; set 10-in. csg.

A. G. Riemenschneider's No. 1 A. T. Fromme, 275 ft. from N line, 912 ft. W line of 300-ac. tract, P. Dexter Sur. ..... T. D. 250 ft.; drlg.

Wm. F. Morgan's No. 1 Peirrie, 7,600 ft. SW of NE line, 2,550 ft. SW of NW line of Fannie Peirrie 2,350-ac. tract, SW part of county in the Vincente Ramon Sur. ..... T. D. 4,314 ft.; shut down.; working on rig.

GONZALES COUNTY

Mardon Oil Co.'s No. 1 Bovier, 150 ft. N and W lines in the James Stewart Sur., 5 miles NW from Waelder ..... T. D. 1,850 ft.; shut down (now carried as Mardon Oil Co.).



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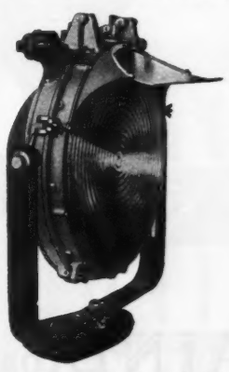

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Acme Oil & Royalty Corp.'s No. 1 Weber, Thomas Wright Sur. ..... T. D. 2,350 ft.; shut down.
A. J. Keiffer et al's No. 1 B. B. Dix, 5,550 ft. W of E line, 2,775 ft. N of S line (Guadalupe River) in the Ira Nash Sur., 4 miles SE from Darst Creek ..... T .D. 2,800 ft.; shut down.
Atibus et al's No. 1 C. Martin, 268 ft. from N line, 2,650 ft. W line 210-ac. tract in the M. A. Williams Sur. ..... T. D. 2,020 ft.; temp. abandoned.
Finnell & Elam's No. 1 J. F. Robinson, 2,000 ft. N line, 4,420 ft. E line, in the J. H. Livergood, 2½ miles NE from Waelder ..... T. D. 2,545 ft.; shut down

GUADALUPE COUNTY

Grayburg Oil Co.'s No. 2 Wells, 5,730 ft. E line, 2,490 ft. S line of NE cor. of Wells tract in the James D. Baume Sur., 6 miles SW from Darst Creek ..... Waiting on drilling rig.
Cranfill & Reynolds' No. 1 Wilson, 150 ft. S line, 1,200 ft. to W line 92-ac. tract in the Jesus Canter Sur., 8 miles SE from Seguin ..... Rigging up.
Brown Hill et al's No. 1 George Altzger, 1,300 ft. from SE line, 1,100 ft. from SW line, of 120-ac. tract in A. Mansola Sur. ..... T. D. 1,250 ft.; shut down.
Hadley et al's No. 1 Hartwig, 2,000 ft. S-N line, 930 ft. E-W line of survey, Wm. Hartung 656-ac. in the Richard Nixon Sur., 6 miles SW from Darst Creek .. T. D. 2,110 ft.; drlg. in shale.
Penn Oil Co.'s No. 1 State Land, 1,300 ft. W line J. C. Darst Sur., 1,300 ft. NE line R. Moss 50-ac., near SE cor. J. K. Davis Sur., 2½ miles SW from Darst Creek ..... Rig up.
Transcontinental Oil Co.'s No. 1 W. M. Dollie, 150 ft. from S line, 1,422 ft. from E line of 78-ac. tract in the E. Gotarie Sur., 5 miles SE from Seguin ..... T. D. 2,308 ft.; dry and abandoned.
Tidal Oil Co.'s No. 1 J. Seiligman, 150 ft. from N and E lines of the J. Seiligman 40-ac. NW cor. of J. H. Williamson Sur., 15 miles S from Seguin ..... T. D. 2,796 ft.; Edwards.

JACKSON COUNTY

The Texas Company's No. 1 Mitchell, 1,750 ft. E, 880 ft. N of SW cor. Ewing Sur. ..... T. D. 2,986 ft.; drlg. in sandy shale.

JIM WELLS COUNTY

E. W. Ogden's No. 1 G. Farris, M. Perez Sur. ..... T. D. 2,615 ft.; shut down.

KARNES COUNTY

Hewitt et al's No. 1 H. N. Matula, 450 ft. from E and center of NW and SE lines of 125-ac. farm in the Victor Blanco Sur. ..... T. D. 4,000 ft.; shut down.
H. M. Lightfoot et al's No. 1 Barnett in the Alex Hunter Sur., 6 miles N of Karnes City ..... T. D. 2,916 ft.; preparing to deepen from abandoned depth, was carried as J. G. Fisher et al.
J. F. Morrisey et al's No. 1 Ragsdale, 660 ft. SW of C of NE line of 170-ac. farm in the McCouli Sur. .... T. D. 200 ft.; preparing to set surface casing.
Dr. Hewitt's No. 1 W. E. Porter, 650 ft. from N line, 700 ft. from W line of 416-ac. tract in the Victor Blanco Sur., 8 miles SE from Runge ..... Drlg. in sticky shale 2,407 ft.
Moody-Seagraves' No. 1 Habermacher, 2,110 ft. from E line, 487 ft. from S line in the W. W. Boyce Sur. .... Location.
Mundine Investment Co.'s No. 1 A. D. Wilburn, C of 143 ac. in H. K. Hardy Sur., 3 miles SE from Dunge ..... T. D. 300 ft.; set 10-in. csg.; waiting on cement.
Hewitt et al's No. 1 W. E. Porter ..... T. D. 3,650 ft.; shut down.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... T. D. 730 ft.; shut down.
A. S. Mowinkle's No. 1 Kaston, 150 ft. from N line, 150 ft. from E line of tract, Sur. No. 724, 9 miles due W of Kendalia ..... T. D. 450 ft.; drlg.
Sitten et al's No. 1 Garvin, C of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 425 ft.; shut down.
Dickinson et al's No. 1 Edmondson, 150 ft. from S line, 350 ft. from W line of tract in the J. O. Blair No. 72 Sur., 1 mile NW from Kendalia ..... T. D. 40 ft.; spudded in and shut down.
Seaboard Oil & Gas Co.'s No. 1 W. Asken, SW cor. of Sur. in the Miguel die Toro Sur., 3 miles N from Sisterdale ..... T. D. 1,090 ft.; abandoned.
Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3½ miles SE from Sisterdale ..... T. D. 1,755 ft.; hard lime; fishing.
F. B. Sterling's No. 1 Willie Weiner, approx. 800 ft. each way out of SE cor. of the J. C. Tarry Sur., 8 miles W from Kendalia ..... T. D. 914 ft.; pumped dry; drop. from reports.
F. B. Sterling's No. 1 McCracklin, 1,350 ft. from N line, 250 ft. from W line of the B. G. Owens Sur., 4 miles W from Kendalia ..... T. D. 100 ft.; drlg.

KERR COUNTY

Mashe & Tunstill's No. 1 Love Ranch, 1,000 ft. from W line of Sec. 1,594, 100 ft. S of S line of Sec. 1,597, in the G.C.S.D.&R.G.N.G. Sur. ..... Rigged up.

KLEBERG COUNTY

Bowen & Sarles' No. 1 Robert, H. Simmons in the A. Houston Sur. No. 611, Sec. 7, King Subd., 150 ft. out of NW cor. of SW ..... T. D. 1,535 ft.; shut down.

KINNEY COUNTY

Magnolia Petroleum Co.'s No. 1, SE cor. of Bladz Sur., near S.P.R.R., close to Blume test on Wardlow ranch, W part of county, 2½ miles from Blume .... T. D. 1,425 ft.; drlg. in lime.
A. Blume et al's No. 2 Herbst, 1,731 ft. W and S lines of Sur. in the Poindexter-Burns Sur. ..... T. D. 275 ft.; shut down.
Mardon Oil Co.'s No. 2 Jim Clamp, in the John Winter Sur. No. 346, near No. 1 ..... T. D. 1,400 ft.; shut down.

KIMBLE COUNTY

Lindley Bros.' No. 1 Anderson, Sec. 178, Mubenger Sur... T. D. 990 ft.; shut down.
C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. ..... T. D. 685 ft.; shut down.

LASALLE COUNTY

Salt Lake City Pet. Co.'s No. 1 Beckwith, Sur. 17, 150 ft. S line, 150 ft. E line ..... T. D. 2,900 ft.; drop. until work is resumed.
O. Stalley et al's No. 1 Nichols, 2,000 ft. from W line, 500 ft. from S line in the Ayers Sur. ..... Location.

LIVE OAK COUNTY

Dougherty et al's No. 1 Jim Dougherty, 2,254 ft. SE of NW line, 750 ft. NE of SW line of M. Boren Sur. ..... T. D. 2,010 ft.; drlg.

MAVERICK COUNTY

Rycade Oil Corp.'s No. 6 Chittim, 1,445 ft. from S, 320 ft. from W of Sec. 116, Blk. 7, I.&G.N. Sur. ..... T. D. 2,636 ft.; shut down.
Rycade Oil Corp.'s No. 5 Chittim, 600 ft. W of No. 3 Chittim, 500 ft. E line, 225 ft. from S line of SE Sec. 115, Blk. 7, in the I.&G.N. Sur. ..... T. D. 3,925 ft.; drlg. in lime rock.
Rycade Oil Corp.'s No. 5 Sullivan, in C of Sec. 82, Blk. 7, in the I.&G.N. Sur. ..... T. D. 5,607 ft.; drlg. in lime rock.

MEDINA COUNTY

Pat Armstrong's No. 1 C. W. Butts, in George C. Hanson Sur. ..... T. D. 1,350 ft.; dropped from reports.
Pearson Oil Co.'s No. 6 Medina Valley Inv. Co., 2,500 ft. S and E line of lease of Isom Palmer Sur. ..... T. D. 260 ft.; drlg. in shale.
R. M. Perkins' No. 1 R. J. Taylor, 270 ft. from W line, 1,200 ft. from S line of 40-ac. tract in the S. Castro No. 136, 3½ miles SW from Hondo ..... Abandoned.
Pan American Pet. Co.'s No. 1 Antoine Hart, in Harrison Sur. No. 799, 15 miles S from Hondo ..... T. D. 1,187 ft.; set csg. at 1,107 ft.; sand; shut down.

BOTTOM OUTLET
—no pockets or dilution

FEWER JOINTS
—less danger of leakage
—simplified piping arrangement
—no extra headers or fittings
—disc easily renewed

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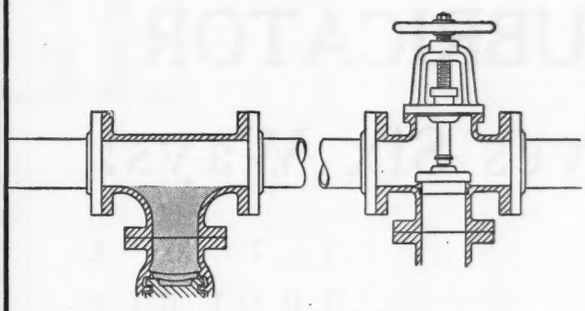

AT the top is fitting with a gate valve in the closed position. Note the large pocket of oil which is trapped. At the start of each run, when the grade of distillate is changed, considerable waste results.

The bottom outlet of Pratt & Cady Three-way Cross Valves is flush with the bottom of the pipe as shown above at the right. There are no pockets. Each run starts off without dilution.

▼

Also, extra headers and fittings are required when gate valves or straightway cocks are used exclusively. With Pratt & Cady Three-way Cross Valves, the elimination of many joints lessens the danger of leakage—the cost of maintenance is lowered—the piping arrangement is greatly simplified.

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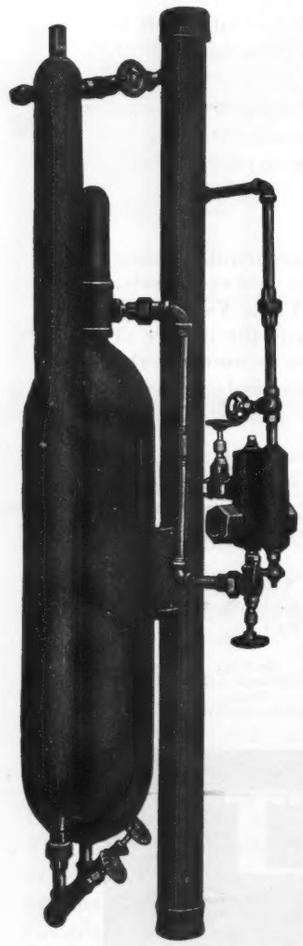

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Herman Wagener, Oklahoma City
Byers Drilling Co., Oklahoma City
A & B Drilling Co., Oklahoma City
Capitol Drilling Co., Oklahoma City
Prince & Prince, Electra, Texas
Clark & Cowden, Duncan, Okla.
Independent Oil Co., Oklahoma City
G. E. Gilberth, Oklahoma City
Golden & Cochran, Wink, Texas
Haynes Drilling Co., Wink, Texas
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Steinberg & Yerkee, Seminole, Okla.
Fain-McGaha, Wichita Falls, Texas
Alleson & Clevinger, Seminole, Okla.
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CHICKASHA, OKLAHOMA

National Oil Co.'s No. 1 Howard, 1,750 ft. E of W line, 1,854 ft. N of S line of survey in the John George Sur. No. 9, 10 miles S of Dunlay ..... T. D. 300 ft.; shut down.
Sun Oil Co.'s No. 1 Edgar, 450 ft. from E line, 150 ft. from S line of 320-ac. tract in the J. Buell No. 362, 3 miles N from Noonan ..... T. D. 520 ft.; drlg. in shale.
Sunflower Oil Co.'s No. 1 M. Modfield, 3,340 ft. from E line, 1,335 ft. S line of 640-ac. tract, Sur. 532, 10 miles S from Hondo ..... T. D. 900 ft.; limy sand and shale; set 6-in. csg. at 890 ft.
Donaldson Oil & Dev. Co.'s No. 2 Adams Co., James Hillenmeyer No. 25 Sur., 500 ft. to E line of Sur., 150 ft. to S line of N half of Sur. ..... T. D. 200 ft.; shut down.
Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of Sur., 478.6 miles W from Devine ..... T. D. 400 ft.; shut down.

SAN PATRICIO COUNTY

George B. Pickett's No. 1 Baldwin, 9,000 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Neil Sur., Abstract 211 ..... T. D. 2,743 ft.; coring; change in formation.
Cosden Oil Co.'s No. 1 Schmolsteig, C of SE Sec. 9, H. Powell Subd. in the B. Blanchard Sur. ..... Location.
LaFeria Oil & Gas Co.'s No. 1 C. C. Smith, in J. C. White Sur., 690 ft. to N line, 350 ft. to E line ..... T. D. 3,050 ft.; shut down in sandy shale.

STARR COUNTY

I. V. Maclean's No. 1, Tract No. 5, 1,063-ac., Porcion 81, Juan Jose de la Garza in the Falcon grant ..... Location.
Smith & Adams' No. 1 Welch, Perdernal Sur. ..... T. D. 850 ft.; drlg.

UVALDE COUNTY

Waldrop & Welch's No. 1 H. S. Benson, 2 miles NW of Uvalde ..... T. D. 1,412 ft.; drlg. in lime rock.
Waldrop & Welch's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71, in the A. Gomez Sur., 8 miles S of Uvalde ..... T. D. 1,160 ft.; shut down.
Phantom Oil Co.'s No. 1 Claudt, Sec. 611 ..... T. D. 2,150 ft.; drlg. in black shale.

VICTORIA COUNTY

Lion Oil & Ref. Co.'s No. 1 J. A. McFadden, 2,577 ft. W, 514 ft. N from NE cor. of C. O. Edwards tract in M. J. Travies Sur. ..... T. D. 3,745 ft.; tested gas; showing for well; estimated 50,000,000 ft. gas; set 8¼-in. csg. at 3,742 ft.

WILLACY COUNTY

Weimer-Richardson's No. 1 Elmore ..... T. D. 1,860 ft.; shut down in gumbo.

WILSON COUNTY

Transcontinental Oil Co.'s No. 1 J. H. Bain, 150 ft. out of E cor. of tract, 1,850 varas from SW line and 75 varas from SE line of Noel F. Roberts Sur. ..... T. D. 800 ft.; drlg. in sandy shale.

WILLIAMSON COUNTY

Harlem et al's No. 1 H. H. Stiles, in the J. Bevil Sur., 220 ft. N and 330 ft. E of Sur. ..... Rigging up.
Fred Beatty's No. 1 H. Bland, 450 ft. from N line, 1,000 ft. from E line of tract, in the P. Coursey Sur., 1 mile E from Taylor ..... T. D. 1,176 ft.; shut down.
Fred Beatty's No. 1 J. B. Pumphrey, 1,328 ft. from S and E lines of Mrs. J. B. Pumphrey 158-ac. tract in the W. Cartwright Sur. ..... Rigging up.
M. Bartlett et al's No. 1 R. E. Thomas, 450 ft. from N line, 170 ft. from E line of S 50 of 100-ac. of farm in the H. Owen Sur. ..... Spudded in.
E. L. Chapman's No. 2 J. H. McConnell, 1,070 ft. from W line, 150 ft. from N line of tract in the S. Miller Sur. ..... Rigging up.
Elliot et al's No. 1 S. W. Jones, 600 ft. from W line, 400 ft. from S line of Alvert Nantz Sur. ..... Spudded in.
E. L. Chapman's No. 2 Fuchs, 150 ft. SW line, 750 ft. NW line of 93-ac. tract in the S. Miller Sur. ..... T. D. 1,000 ft.; drlg.
G. B. Peterman's No. 2 J. C. Abbott, 450 ft. from S and W line of Abbott 100-ac. tract, in the Simon Miller Sur., SE from Thrall ..... Rigging up.
Bridwell et al's No. 1 H. L. Martin, 1,150 ft. from N line, 150 ft. from W line of Simon Miller Sur. ..... Rigging up.
McNeil et al's No. 1 R. L. Abbott, 300 ft. NW line, 150 ft. NE line of Abbott 15-ac. tract, in the S. Miller Sur. ..... Spudded in.
Powell & Kykendall's No. 1 Christian Mager, in the W. Byerly Sur., 150 ft. N and 450 ft. E of farms of 150 acres ..... Old well deepening.
E. L. Chapman's No. 1 Barney Lawrence, 330 ft. from SE and SW lines of farm, in the Simon Miller Sur. .. Rigging up.
E. L. Chapman's No. 1 J. F. McConnell, 150 ft. from S and W of 100-ac. farm in the Simon Miller Sur. .. T. D. 1,922 ft.; Serpentine; light show oil 1,900 ft.
E. R. Ertell's No. 1 J. F. McConnell, 295 ft. from N line, 180 ft. from W of S 50-ac. of 100-ac. farm, in the Simon Miller Sur. ..... T. D. 2,136 ft.; small oil show 1,100 ft.
Keeshan et al's No. 1 R. L. Abbott, 170 ft. from N line, 772 ft. from W line of farm, in the Simon Miller Sur. ..... Derrick up.
E. W. Marts et al's No. 1 R. L. Abbott ..... Spudded in.
Taylor Temple Oil Co.'s No. 1 F. M. Cain, 876 ft. from E line, 150 ft. from N line of C. D. Johnson 109-ac. tract in the S. Miller Sur. ..... Rigging up rotary.
J. A. Thompson's No. 1 T. H. Martin, 150 ft. N and E lines of 20-ac. tract in the S. Miller Sur. ..... Location.
Westheimer & Daube's No. 1 R. L. Abbott, 150 ft. from N and W lines of 57-ac. tract in the S. Miller Sur. .. Location.
R. R. Wilder's No. 1 H. T. Martin, 158 ft. from N and E lines of H. T. Martin 76.25-ac. tract in the S. Miller Sur. ..... Rigging up rotary.
L. W. Wilson et al's No. 1 W. L. Lawrence, 150 ft. from W line and C N and S of 35-ac. tract or 1,400 ft. from SW line, 1,450 ft. SW line of H. Owens Sur. ... Spudded in.

ZAPATA COUNTY

B. F. Nixon's No. 1 A. Gutierrez, 170 ft. S line, 332 ft. E line, Lot 5, Blk. 8, Partition 10, Borrego grant .... Rigging up.
National Oil Co.'s No. 1 D. B. Adams ..... T. D. 1,200 ft.; sand shows oil odor.

ZAVALA COUNTY

Krebs & Davis' No. 1 Weatheresby, E center of NW of Sec. 44, Blk. A, Adams, Beaty & Mouton Sur., 4 mi. E from Loma Vista ..... T. D. 1,265 ft.; drlg. in shale.
Ed Anglin's No. 4 J. K. Pryor, 4,020 ft. from E line, 400 ft. from NW line of Sur. or 3,500 ft. from N, 50 ft. E of No. 2 in the Antonio Aguierro Sur., 9 miles NE from La Pryor ..... T. D. 690 ft.; comp.; est. 5,000,000 ft. gas day.
Weigand Bros.' No. 1 W. L. Gates, Hooper & Wade Sur. No. 13, 1,320 ft. S of N line, 1,220 ft. W of NE cor. Sur., about 16 miles S of Bateville ..... T. D. 2,420 ft.; drlg. in shale.
Thomas T. Taylor's No. 1 Townsite of Delmonte, 600 ft. SE of city water works ..... Location.
Jack Baldwin's No. 1 J. R. Price, in the W. E. Erskin Sur. No. 34 ..... T. D. 1,180 ft.; drlg. sandy shale.
Southern Crude Oil Purch. Co.'s No. 1 Nat M. Washer, in the T. Pinckhardt Sur. No. 180, 1 deg. E, 6,795 ft. from SE cor. ..... T. D. 4,712 ft.; drlg. in lime.
Texas Fuel & Gas Co.'s No. 5 West, 150 ft. from SE line, 4,700 ft. from SW of Marguett Singer Sur., 20 miles SW from Batesville ..... T. D. 1,500 ft.; shut down.
F. Baldwin's No. 1 Washer, 300 ft. S and E of Sec. 34, in the W. E. Erskin Sur. ..... T. D. 2,185 ft.; drlg. in hard shale.

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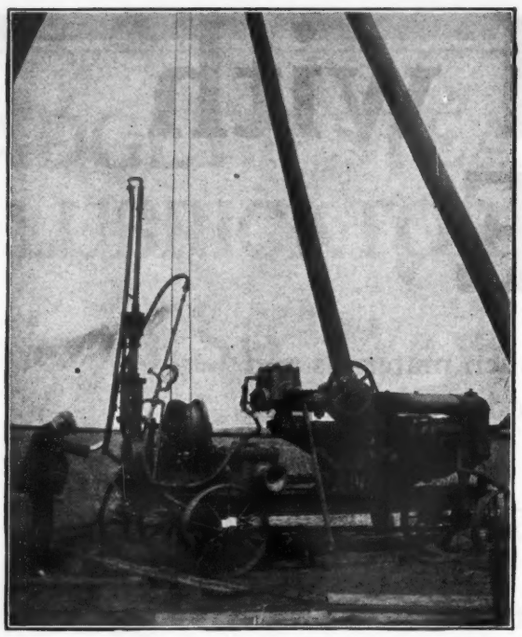

54,621 FEET
OF STRUCTURE DRILLING COMPLETED
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CALIFORNIA OIL FIELD OPERATIONS FOR APRIL, 1930

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for April amounted to 18,768,743 bbls., an average of 625,625 bbls. per day. This is a decrease of 9,858 bbls. per day under March production.

Total stocks of crude and all products in Pacific Coast teritory decreased during the month 1,777,619 bbls. The total stocks at the end of the month were 187,192,759 bbls. The total stock increase for 1930, up to April 30, was 2,429,026 bbls.

Fifty-four wells were completed during the month with an initial daily production of 42,142 bbls., compared with 79 wells completed during March with an initial production of 45,924 bbls.

PRODUCTION

(Figures of production and stocks are in barrels of 42 gallons)

District—	Barrels per month	Daily average Apr., 1930	Mar., 1930	Apr., 1929
Kern River	468,907	15,630	15,395	16,058
Mount Poso	357,376	11,913	9,920	51
Fruitvale	58,207	1,940	2,062	235
Round Mountain	118,137	3,938	3,238	38
McKittrick	126,932	4,231	4,254	4,875
Midway-Sunset	2,006,331	66,878	68,321	70,224
Elk Hills	606,800	20,193	17,677	18,518
Lost Hills-Belridge	68,352	2,278	2,414	4,434
Coalinga	277,991	9,266	9,220	9,919
Kettleman Hills	422,553	14,085	12,861	3,808
Wheeler Ridge	17,980	599	619	734
Watsonville	1,875	63	63	61
Santa Maria	93,441	3,115	3,091	4,824
Capitan	568	19	74	.....
Summerland	9,740	325	406	121
Elwood	1,319,017	43,967	39,001	28,591
Santa Barbara	.....	.....	.....	.....
Rincon	84,715	2,824	2,897	3,248
Ventura Avenue	1,358,538	45,285	44,370	55,356
Ventura-Newhall	149,465	4,982	5,005	5,174
Los Angeles-Salt Lake	45,291	1,510	1,523	1,500
Whittier	42,007	1,400	1,410	1,525
Fullerton (Brea Olinda)	379,617	12,654	13,548	13,187
Coyote	311,074	10,369	10,833	11,454
Santa Fe Springs	3,842,187	128,073	150,009	158,321
Montebello	219,498	7,317	7,017	10,859
Richfield	298,163	9,939	10,721	15,967
Huntington Beach	853,728	28,458	29,121	44,748
Long Beach	3,098,489	103,283	99,421	190,102
Torrance	356,143	11,871	12,114	14,505
Dominguez	291,535	9,718	9,126	10,741
Rosecrans	191,865	6,395	6,809	6,404
Inglewood	522,814	17,427	17,790	24,744
Newport	1,200	40	40	40
Seal Beach	704,563	23,485	24,006	44,660
Potrero	40,091	1,336	952	692
Lawndale	12,981	433	154	774
Playa Del Rey	11,572	386	.....	.....
Total	18,768,743	625,625	635,483	776,502
March	19,699,979	635,483		
Decrease	931,236	9,858		

STOCKS

	April 30, 1930	March 31, 1930	Apr. stock decreases	April 30, 1929
Heavy crude, heavier than 20° A.P.I., including all grades fuel	112,198,691	113,123,700	925,009	101,900,145
Refinable crude, 20° A.P.I., and lighter	44,475,703	44,810,122	334,419	27,766,755
Gasoline	18,046,275	18,373,397	327,122	14,113,736
Naphtha distillates	3,832,736	3,697,674	*135,062	1,933,402
All other stocks	8,639,354	8,965,485	326,131	9,667,253
Total all stocks	187,192,759	188,970,378	1,777,619	155,381,291

*Increase.

DEVELOPMENT

District—	New rigs up	Active drilling	Completed	Daily initial output	Active producing	Abandoned wells Drillers	Abandoned wells Producers
Kern River	3	2	2	330	876	..	..
Mount Poso	8	8	1	174	79	..	..
Fruitvale	2	7	..	...	13	..	..
Round Mountain	4	4	1	150	18	..	..
McKittrick	..	1	2	75	246	..	..
Midway-Sunset	5	14	3	1,402	1,939	3	6
Elk Hills	..	..	..	...	241	..	..
Lost Hills-Belridge	..	4	..	...	166	..	..
Coalinga	..	1	..	...	729	..	1
Kettleman Hills	..	5	1	2,143	6	1	..
Buttonwillow Gas Field	..	2	..	...	4	..	..
Wheeler Ridge	..	..	..	...	33	..	..
Watsonville	..	..	..	...	6	..	..
Santa Maria	1	4	..	...	187	1	..
Summerland	..	..	..	...	98	1	..
Capitan	1	1	..	...	1	1	..
Elwood	6	6	3	12,605	31	..	..
Santa Barbara	..	..	..	...	...	1	..
Rincon	..	1	1	1,000	33	2	1
Ventura Avenue	3	28	4	7,266	148	..	..
Ventura-Newhall	2	20	..	...	468	2	..
Los Angeles-Salt Lake	..	..	..	...	309	..	..
Whittier	..	1	..	...	167	..	..
Fullerton	..	1	..	...	376	..	..
Coyote	..	6	..	...	193	..	..
Santa Fe Springs	3	34	17	9,270	454	2	12
Montebello	..	..	..	...	170	..	..
Richfield	..	2	..	...	195	..	..
Huntington Beach	..	2	3	140	434	..	3
Long Beach	25	67	15	6,172	879	5	1
Torrance	..	..	..	...	562	..	2
Dominguez	..	2	..	...	57	..	..
Rosecrans	1	1	..	...	101	..	..
Inglewood	2	..	..	...	216	..	..
Newport	1	1	..	...	4	1	..
Seal Beach	..	3	..	...	131	..	..
Potrero	..	4	1	1,415	10	..	..
Lawndale	..	1	..	...	8	..	..
Playa Del Rey	3	12	..	...	1	..	..
Miscellaneous drilling	30	168	..	...	...	6	..
April	100	413	54	42,142	9,589	26	28
March	61	408	79	45,924	9,533	30	27
Decrease	*39	*5	25	3,782	*56	4	1
Average for year 1929	109	610	76	100,625	10,550	26	18
Average for year 1928	107	520	59	56,802	10,823	15	25
Average for year 1927	97	404	75	39,992	11,276	23	21
Average for year 1926	95	422	76	32,635	11,288	24	17
Average for year 1925	105	417	79	42,247	11,393	28	12

*Increase.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 50)

G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w.....Shut down 1,450 ft.
Green et al's No. 1 Wilson, C NE SW Sec. 14-1-12w.....Shut down 4,055 ft.

GARFIELD COUNTY

Shell Petroleum Corp.'s No. 1 Loomis, C NW NW Sec. 32-23-4w .....Drlg. 5,686 ft.
E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w .....Shut down 5,580 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w....Shut down 100 ft.
J. M. Henry et al's No. 1 Abraham, SE cor. NW Sec. 4-5-8w .....Rig.

GRANT COUNTY

Cowden et al's No. 2 Vollmer, CEL NE SW Sec. 22-25-4w.Shut down 5,640 ft.

GARVIN COUNTY

Nelson et al's No. 1 Strickland, NE SW Sec. 10-4-3 .....Shut down 2,675 ft.

GREER COUNTY

I. T. I. O. et al's No. 1 fee, C SW NE Sec. 17-6-24w .....Fishing 2,286 ft.

HARMON COUNTY

Harmon-Tex Oil Co.'s No. 1 Hoadley, NE cor. Sec. 17-4-24w .....Shut down 2,000 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w..Shut down 625 ft.

HARPER COUNTY

Empire's No. 1 Bruce, C NE SW Sec. 12-25-20w .....Drlg. 5,115 ft.
Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w .....Drlg. 8,582 ft.

HASKELL COUNTY

Mid-Western's No. 1 Polster, C NE SE Sec. 33-10-22 .....Drlg. 2,850 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e .....Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE SW Sec. 10-9-18e....Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e..Shut down 2,100 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11 .....Shut down 1,106 ft.
Canady et al's No. 1 Kanard, NW SW Sec. 29-9-12 .....1,000,000 ft. gas 2,284 ft.; total depth 2,815 ft.; drlg. 3,682 ft.
Irwin et al's No. 1 Jones, SE NW Sec. 30-5-10 .....Fishing 3,695 ft.

KAY COUNTY

Alco Royalty Co.'s No. 1 Wolf, SE SW SE Sec. 34-26-2w..Drlg. 2,235 ft.
Waggoner Pet. Co.'s No. 1 Hinkle, C SW NW NW Sec. 3-26-3 .....O.W.D.; drlg. 3,627 ft.
Blankenship Petroleum Co.'s No. 1 Hansen, SW NW SW Sec. 17-27-2 .....Drlg. 2,210 ft.

KINGFISHER COUNTY

Galt Brown's No. 1 Wolf, NW SE Sec. 6-16-7w .....Shut down 6,015 ft.

KIOWA COUNTY

Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 20-7-17w.Shut down 1,525 ft.

LEFLORE COUNTY

Red Bank Oil Co.'s No. 1 fee, SE SW NW Sec. 23-9-24...15,000,000 ft. gas; total depth 5,488 ft.; C.O.

LATTIMER COUNTY

Limestone Oil & Gas Co.'s No. 1 Murray, NE cor. Sec. 25-5-18 .....Drlg. 1,450 ft.
Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW Sec. 23-5-18e .....Shut down 3,310 ft.

LINCOLN COUNTY

Turman Oil Co.'s No. 1 Knox, NE SW Sec. 28-17-2 .....Rig.
Atlantic Oil Prod. Co.'s No. 1 Parker, SE NW Sec. 5-14-6 .....Location.
Magnolia Pet. Co.'s No. 1 Winship, NE SW Sec. 2-13-4...Drlg. 1,560 ft.
Tom Slick Oil Co.'s No. 1 Hammer, SE NW NW Sec. 35-16-2 .....R.U.S.T. 5,144 ft.

LOGAN COUNTY

Slick & Ramsey's No. 1 Jones, SE NW Sec. 24-17-2w ....Location.
Prairie and Slick's No. 1 Morgan, NW NE Sec. 33-16-1w .....Drlg. 4,445 ft.
Eason Oil Co.'s No. 1 Young, C SW NE SW Sec. 34-17-4w.Drlg. 200 ft.
Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w..Abandoned 3,970 ft.

McINTOSH COUNTY

T. C. Young's No. 1 Derrison, Sec. 3-12-15 .....Fishing 2,325 ft.
Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 .....Shot 240 qts. 5,446-5,559 ft.; shot went off up hole; fishing.

MURRAY COUNTY

Chieftain Royalty Corp.'s No. 1 Hendrix, SW SE NW Sec. 27-2-2 .....Drlg. 1,550 ft.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19....Shut down 1,011 ft.

NOBLE COUNTY

Weaver & Craigin's No. 1 Frederick, C SW NE Sec. 4-24-1w .....Drlg. 1,950 ft.
Gypsy Oil Co.'s No. 1 Bergstrom, SE NE Sec. 28-22-1w..Drlg. 5,082 ft.

OKFUSKEE COUNTY

Flynn & Morgan's No. 1 Burton, NE SW SE Sec. 14-13-9..Abandoned 3,841-51 ft.; water.
Irwin et al's No. 1 Allen, SE SW NE Sec. 15-13-9 .....Wilcox 3,789-95 ft.; shut down.
Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 .....Shut down 2,795 ft.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 .....Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10..Shut down 3,661 ft.

OKLAHOMA COUNTY

L. C. Hivick's No. 1 Sunset Addition, NW SW NW, Sec. 17-11-3w .....Rig.
Mid-Kansas Oil & Gas Co.'s No. 1 Messer, SW cor. Sec. 32-14-3w .....Drlg. 2,490 ft.
Prairie and Slick's No. 1 Dill, SE NW Sec. 17-13-3w....Drlg. 5,657 ft.
Warr et al's No. 1 Castle, SW NW Sec. 20-11-3w .....Drlg. 5,575 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE SW SE Sec. 17-12-4w .....Drlg. 6,200 ft.
Magnolia and Ramsey's No. 1 Johnson, C NE SW Sec. 35-13-3w .....Drlg. 6,508 ft.
Ryan Consolidated's No. 1 Lawton, NE NW Sec. 3-11-2w..Bailing 6,558 ft.
Tom Slick Oil Co.'s No. 1 Martin, C NW NW Sec. 13-13-1w .....T. D. 6,971 ft.; water; plugging back 6,871 ft.; testing.

OSAGE COUNTY

Western American Oil Co.'s No. 1 NW SE Sec. 28-23-6..Drlg. 765 ft.

PAWNEE COUNTY

L. E. Wentz' No. 1 G. Lilly, SE SW NE, Sec. 26-22-3 ....Drlg. 100 ft.
Flynn & Morgan's No. 1 Jones, SW NE Sec. 22-20-5 .....Shut down 50 ft.
Cochran et al's No. 1 Green, NE cor. SW Sec. 15-23-5 ....Rig.

PITTSBURG COUNTY

Empire O. & R. Co.'s No. 1 Williams, C NE SE Sec. 33-7-16e .....Fishing 3,975 ft.

ROGER MILLS COUNTY

Bucy & Stone's No. 1 Williams, C SW Sec. 23-12-24w ...Shut down 2,245 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w .....Shut down 2,905 ft.

SEMINOLE COUNTY

Pure Oil Co.'s No. 1 Shaffer Ashby, SE NE Sec. 22-7-5 ..Drlg. 1,500 ft.
T. Adkins et al's No. 1 McGilbray, SE NE Sec. 4-8-8 ....Drlg. 3,015 ft.
Magnolia and Twin State Oil Co.'s No. 1 Harns, SW NE NE Sec. 8-5-6 .....Shut down 3,365 ft.
Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 35-5-5 .....Location.

WASHITA COUNTY

Southern Inv. Co.'s No. 1 Musie, NW cor. Sec. 10-9-20w...Shut down 280 ft.

WOODS COUNTY

Peerless O. & G. Co.'s No. 1 Crowell, C NW NE Sec. 23-28-16w .....Cleaning out 6,135 ft.
Gypsy-Prairie et al's No. 1 Thompson, SE cor. SW Sec. 10-25-15w .....Shut down 6,104 ft.
Sinclair Oil & Gas Co.'s No. 1 Showwalter, C SW SW Sec. 33-27-16w .....Shut down 6,790 ft.

WOODWARD COUNTY

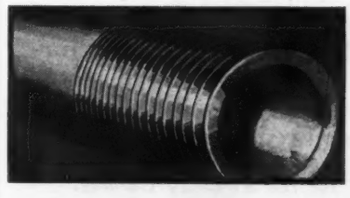
Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 2-22-17w .....Shut down 1,387 ft.

Easily applied

..... it makes pipe joints tight .....

It takes only a few seconds to apply Gilbert & Barker Pipe Sealing Compound to all joints in all couplings, tees and elbows when installing gasoline oil handling equipment. But the protection it affords is as permanent as the line itself. Gas and oil cannot leak past joints sealed the G & B way. No chance for seepage. No stock losses. No expensive overhauling at some future date. Absolute protection for years to come.

Gilbert & Barker Pipe Sealing Compound comes in cans of three sizes; ⅛ pint for 15c, a handy size for the tool kit; pint for 75c, a good size for general shop use, and quart for $1.45, the size to keep on hand for supply.



Fill the male threads *only* with G & B Pipe Sealing Compound, after all threads have been thoroughly cleaned. No time wasted but you give non-crumbling, leak-proof joints to the entire line.

GILBERT AND BARKER
MANUFACTURING COMPANY
PUMPS AND TANKS FOR THE OIL TRADE
SPRINGFIELD, MASS.

Visible Gasoline Pumps, mechanical measure or sight measure, hand or air operated, equipped with the famous NULTRA *bowls. Also piston type pumps with visible discharge. Pump and tank outfits for motor oils, including the popular "NARRO-LUBE" type. Special pipe sealing compound for gasoline and oil pump and tank installations.*

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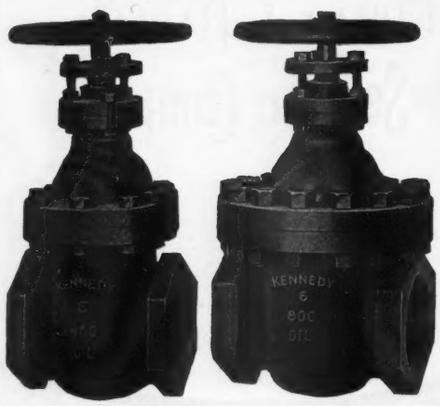
PIPE FITTINGS
FIRE HYDRANTS

KENNEDY



EVERY KENNEDY Valve design, whether for drilling service, refining operations, or pipe line control, is based on over 50 years of experience in meeting the constantly developing problems of valve requirements. In all that time, no Kennedy Valve type has ever had to be withdrawn because of faulty design—a striking proof of the uniform excellence of Kennedy products and your security in standardizing on them.

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Prairie Oil & Gas et al's No. 1 Wilbur, NE cor. NW Sec. 22-23-17w ..... Drlg. 7,214 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Shut down 1,910 ft.

OKLAHOMA PANHANDLE

CIMARRON COUNTY

Magnolia's No. 1 School Land, C SW NE Sec. 27-5-5 ..... Drlg. 100 ft.

TEXAS COUNTY

Palo Alto Oil Co.'s No. 1 Graves, NE SW SW Sec. 23-2-18e ..... Spudded; shut down.
Argus Prod. Co.'s No. 1 Ralston, C SW Sec. 23-6n-14e .... Rig.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Bryant-Croxton's No. 1 Mason, NW SE NW Sec. 4-1s-14.. Drlg. 1,820 ft.
Brookshire's No. 1 Guinn, NW cor. Sec. 18-3s-10 ..... Shut down 100 ft.

BRYAN COUNTY

Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 ..... Drlg. 525 ft.
Johnson et al's No. 1 Ussery, SE SW SE Sec. 14-16s-7e... Shut down 385 ft.
Slab Oil Co.'s No. 1 Ryle, NW SE SE Sec. 27-6s-7 ..... Abandoned 1,500 ft.
Marshall's No. 2 fee, C SW SE NW Sec. 26-5s-7 ..... Shut down; 6-in. csg. 265 ft.

CARTER COUNTY

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Shut down 2,590 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6s-19e ..... Shut down 1,346 ft.

COMANCHE COUNTY

Pelwin Oil Co.'s No. 1 Tafepirdy, C NW NE NE Sec. 5-1s-9w ..... Rig.

COTTON COUNTY

Empire O. & R. Co.'s No. 1 Chambers, NW SE Sec. 8-3s-9w ..... Shut down 4,460 ft.

JOHNSTON COUNTY

N. A. Neff's No. 1 Chapman, C SW NW Sec. 20-4s-5 .... Abandoned.

LOVE COUNTY

Hobbs et al's No. 1 Roberts, NE cor. SW Sec. 20-6s-3w:... Drlg. 2,515 ft.
Gilcrease Oil's No. 1 Burkhart, NE NW Sec. 13-6s-1..... Rig.

MARSHALL COUNTY

McCrory et al's No. 1 Adams, NE SW SE Sec. 31-7s-6 ... Rig.
Wheeler et al's No. 1 Taylor, NE NW NW Sec. 8-7s-6e... Drlg. 600 ft.
Akers et al's No. 1 Spicer, SW SE SE Sec. 33-5s-7e ..... Rig.

McCURTAIN COUNTY

Milton et al's No. 1 Vase, SW NW Sec. 26-6s-21 ..... Shut down 2,287 ft.

STEPHENS COUNTY

C. W. Willis' No. 1 Fair, SE SW SE Sec. 33-1-8w ..... Abandoned 2,445 ft.
R. Southard's No. 1 McKinney, NE cor. Sec. 25-1-8n ..... Rig.
Wirt Franklin Petroleum Corp.'s No. 1 McPhail, NW SE Sec. 1-2s-7w ..... Drlg. 4,464 ft.

TILLMAN COUNTY

Bridwell's No. 1 Pan-te-chee, NE SE Sec. 4-4s-16w ..... Abandoned 2,521 ft.
Flake's No. 1 Barba, NE SE NE SE Sec. 19-1s-16w ..... Abandoned 1,275 ft.
Allen Brothers' No. 1 Howell, SW NE Sec. 13-1-17w ..... Abandoned 1,090 ft.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 52)

DOUGLAS COUNTY

Steinbuckel's No. 1 Unknown, SW NE NW Sec. 34-14-21.. Shut down 1,100 ft.
Jenkins & Scott's No. 1 Haden, SE NW Sec. 10-12-17.... Shut down 1,800 ft.

EDWARDS COUNTY

Dixie and Amerada's No. 1 McCarty, SW cor. Sec. 22-25-17w ..... Water 4,647-90 ft.; shut down 5-100 ft.; plugging back to 4,452-92 ft.

ELLIS COUNTY

Central Commercial Oil Co.'s No. 1 Helms, SE cor. NE Sec. 2-12-20w ..... Drlg. 2,030 ft.
Streeter & Stearns' No. 1 Leiker, SW NE Sec. 26-13-20w.. Drlg. 3,010 ft.
Byrene et al's No. 1 Fisher, NW SE Sec. 4-11-20w..... Shut down 1,000 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w ..... Shut down 3,544 ft.

ELK COUNTY

Croft & Frazier's No. 1 Keys, SE NE Sec. 26-31-10 ..... Rig.
Exchange Oil Co.'s No. 1 Rittig, NW SW Sec. 28-31-10... Drlg. 1,800 ft.

FORD COUNTY

McNabb et al's No. 1 Fowler, C SE Sec. 26-27-22w ..... Shut down 400 ft.
Swain et al's No. 1 Kenthorne, C NW Sec. 21-25-24w.... Shut down 3,440 ft.

GOVE COUNTY

Valerius & Baucher Oil Co.'s No. 1 Todd, NW cor. Sec. 24-13-27w ..... Fishing 880 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w. Shut down 4,340 ft.
Naylor et al's No. 1 St. John, NW SE SE Sec. 27-8-25w.. Drlg. 3,015 ft.

GRANT COUNTY

McKenna et al's No. 1 Sullivan, NE cor. Sec. 12-29-38w.. Shut down 50 ft.

GREENWOOD COUNTY

Mallory's No. 1 Denchfield, SE NW Sec. 12-27-9 ..... Drlg. 1,150 ft.
Bundy, Smith & O'Neil's No. 1 Ford, NE NW Sec. 28-25-13 ..... Shut down 50 ft.
F. Konkay et al's No. 1 Rock, NW NE NE Sec. 7-27-12.. Drlg. 1,820 ft.

HARPER COUNTY

Beeler et al's No. 1 Bear, C NE Sec. 21-31-6w ..... Shut down 1,830 ft.

HARVEY COUNTY

Gypsy Oil Co.'s No. 1 Hege, SE NW SE Sec. 13-22-2w.... Wilcox 3,455-3,515 ft.; water.
Gypsy Oil Co.'s No. 1 Shine, SE SW Sec. 26-22-3w..... Drlg. 3,642 ft.

KIOWA COUNTY

Phillips-Prairie's No. 1 Bean, NE SE Sec. 10-30-17w..... Shut down 1,370 ft.
McKenna et al's No. 1 Raison, C NE Sec. 14-28-20w ..... Rig.

LYONS COUNTY

Sheedy et al's No. 1 Pyle, NE cor. Sec. 1-20-10 ..... Drlg. 750 ft.

MARION COUNTY

Empire Oil & Ref. Co.'s No. 1 Hiebert, SE SW SE Sec. 20-20-2 ..... Drlg. 1,450 ft.
Marshall et al's No. 1 Higgins, NE cor. Sec. 33-19-5..... Rig.

MARSHALL COUNTY

Swicker & Sincox's No. 1 Remple, C N half NW Sec. 22-4-9 ..... Shut down 1,000 ft.
Brazier et al's No. 1 Runkel, SE NW Sec. 13-2-6 ..... Spudding.

McPHERSON COUNTY

Simmons & Canary's No. 1 Bishop, NW SW Sec. 15-18-1w ..... Drlg. 370 ft.
Harry Skelly et al's No. 1 Neufeldt, SE NE Sec. 19-21-3w ..... Rig.
Milmac's No. 1 Decker, NW cor. Sec. 11-20-3w ..... Drlg. 3,190 ft.

MIAMI COUNTY

Clark's No. 1 Vaughn, SE SW Sec. 28-17-22w ..... Shut down 980 ft.

MORTON COUNTY

McNabb et al's No. 1 Rickart, C SE Sec. 5-35-39w ..... Rig.
Argus Prod. Co.'s No. 2 Chambers, C SE Sec. 21-34-39w.. Rig.
Argus Prod. Co.'s No. 1 Mangels, C NW Sec. 4-34-39w.... Rig.
Argus Prod. Co.'s No. 1 Tillet, C SW Sec. 21-34-39w..... Rig.
Argus Prod. Co.'s No. 1 Sullivan, C NW Sec. 29-34-39w.. Rig.
Argus Prod. Co.'s No. 1 Burton, C SE Sec. 11-33-40w.... Location.
Argus Prod. Co.'s No. 1 Mangels, C SE Sec. 4-33-39w.... Rig.
Argus Prod. Co.'s No. 1 Patterson, C NE Sec. 5-33-39w... Location.
Argus Prod. Co.'s No. 1 Morgan, C SW Sec. 6-33-39w.... Location.
Argus Prod. Co.'s No. 1 Thompson, C SW Sec. 8-33-39w... Rig.
Argus Prod. Co.'s No. 1 Mangels, C SW Sec. 19-33-39w... Location.
Argus Prod. Co.'s No. 1 Mangels, C NE Sec. 20-33-39w... Location.
Argus Prod. Co.'s No. 2 Haywood, C NW Sec. 31-33-39w.. Drlg. 1,730 ft.
Argus Prod. Co.'s No. 1 Garner, C SE Sec. 18-33-39w.... Location.
Argus Prod. Co.'s No. 1 Dreibelbis, C NE Sec. 9-34-39w.. Spudding.

Argus Prod. Co.'s No. 1 Morgan, C NW Sec. 8-33-39w....Location.
Argus Prod. Co.'s No. 1 Hayward, C NW Sec. 31-33-39w..Fishing 1,425 ft.
Argus Prod. Co.'s No. 1 Little, C SE Sec. 24-34-40w.....Drlg. 2,210 ft.
Argus Prod. Co.'s No. 1 Watson, C NE Sec. 27-34-40w....Rig.
Argus Prod. Co.'s No. 1 Mangle, C SW Sec. 6-34-39w....Drlg. 2,510 ft.
Argus Prod. Co.'s No. 1 Thompson, C SW Sec. 7-34-39w..Drlg. 2,227 ft.
Argus Prod. Co.'s No. 1 Rolla State Bank, C NW Sec. 8-34-39w .....Drlg. 1,750 ft.
Argus Prod. Co.'s No. 1 Hayward, C SW Sec. 9-34-39w..Drlg. 1,510 ft.
Argus Prod. Co.'s No. 1 Thompson, C NW Sec. 18-34-39w.Rig.
Argus Prod. Co.'s No. 1 Darth, C NE Sec. 20-34-39w....Drlg. 1,535 ft.
Argus Prod. Co.'s No. 1 Haws, C SW Sec. 31-32-39w ....Location.
Argus Prod. Co.'s No. 2 Armstrong, C SW Sec. 4-34-39w..Drlg. 2,550 ft.
Argus Prod. Co.'s No. 1 Hayward, C SW Sec. 9-34-39w...Fishing 1,425 ft.
Argus Prod. Co.'s No. 1 Dixon, C SE Sec. 18-34-39w.....Rigging up standard tools 2,545 ft.
Argus Prod. Co.'s No. 1 Chambers, C NW Sec. 25-33-40w.Drlg. 1,825 ft.
Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-34-43w .....Drlg. 1,200 ft.
Argus Prod. Co.'s No. 1 Low, C SE Sec. 16-33-40w.....Rig on ground.

MORRIS COUNTY

Henderson et al's No. 1 Selsman, SW SE Sec. 24-16-9....Rig.
Urschell et al's No. 1 Scott, NE NW Sec. 6-16-6 .....Shut down 2,115 ft.

PAWNEE COUNTY

Skelly Oil Co.'s No. 1 Milhouse, C SE Sec. 34-23-17w...Shut down 4,068 ft.

PRATT COUNTY

Wilcox O. & G. Co.'s No. 1 Bappin, SW NW Sec. 7-26-15w .....Drlg. 3,755 ft.

RENO COUNTY

Phillips Pet. Co. and Tom Palmer's No. 1 Harsch, NE SE Sec. 14-26-5w .....Drlg. 1,000 ft.
United Pet. Co.'s No. 1 Houston, NW cor. Sec. 4-22-10w..Rig.
C. A. Cheney and M. M. Valerius' No. 1 Stevens, C NE SE NE Sec. 6-26-7w .....Drlg. 3,200 ft.

RICE COUNTY

Hershey Golden & Skelly's No. 1 Brandenstein, Sec. 10-19-10w .....Location.
Griffith et al's No. 1 King, NW cor. 8-19-10w .....Rig.
McPherson and Shell's No. 1 Jennings, NE SW NW Sec. 29-18-6w .....Drlg. 1,570 ft.
Miller & Brown's No. 1 Schartz, Sec. 14-20-10w .....Drlg. 1,320 ft.
Hoffner, Lee & Shell's No. 1 Slad Farm Corp., C SW Sec. 33-19-6w .....Drlg. 500 ft.
Tatlock et al's No. 1 Ploog, C SW SE Sec. 33-18-9w ....Drlg. 1,680 ft.
Burgher's No. 1 Fair, C SE NE NE Sec. 14-21-10w ....Abandoned 4,003 ft.
Danciger et al's No. 1 Bell, C SW Sec. 16-19-8w .....Shut down 3,498 ft.
McCulloch et al's No. 1 Williams, C NE Sec. 35-20-8w ..Drlg. 3,520 ft.

ROOKS COUNTY

A. H. Kruger's No. 1 Steis, NW SE SW Sec. 12-9-16w ..Shut down 570 ft.
Streater-Stearn's No. 1 Conger, SE NW NE Sec. 16-10-16w .....Rig.

RUSH COUNTY

Prairie et al's No. 1 Lecker, NW SW SW Sec. 5-18-16w..Location.
Syndicate Oil Co.'s No. 1 Lannen, C SW Sec. 11-18-16w..Location.
McPherson O. & G. Co.'s No. 1 Brack, C NW Sec. 24-17-16w .....Drlg. 460 ft.
Syndicate Oil Co.'s No. 1 Mohr, C SW Sec. 2-18-16w ....Drlg. 380 ft.
Danciger Oil & Refining Co.'s No. 1 Nave, NW cor. Sec. 26-17-17w .....Total depth 3,606 ft.; shut down.

RUSSELL COUNTY

Streater & Stearns' No. 1 Mitchell, SE cor. Sec. 6-15-14w.Rig.
Empire O. & R. Co.'s No. 1 Herbel, NW NE SW Sec. 26-14-14w .....Rig.
Slick et al's No. 1 Berrick, SE SW Sec. 23-15-13w ....Drlg. 340 ft.
Empire and Prairie's No. 2 Ochs, SE NE Sec. 23-15-14w..Drlg. 470 ft.
Austin Drlg. Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w .....Drlg. 442 ft.
Imo O. & G. Co.'s No. 1 Wambley, SE NW NE Sec. 7-14-14w .....Drlg. 2,675 ft.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w ..Shut down 1,010 ft.

SEDGWICK COUNTY

Newman et al's No. 1 Bawly, SE NW NE Sec. 2-27-2 ...Rig.
Tavender et al's No. 1 McLean, SE SW SE Sec. 23-26-1w .....Shut down 975 ft.

SALINE COUNTY

Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w .....Shut down 1,410 ft.
Dixie Oil Co.'s No. 1 Miller, NE SE SE Sec. 9-16-3w ....Drlg. 2,590 ft.

SHAWNEE COUNTY

Jenkins & Scott's No. 1 Sherman, NW NE Sec. 28-10-15 .....Shut down 985 ft.
Jenkins & Scott's No. 1 Haden, NE SE Sec. 8-12-14 ....Shut down 2,325 ft.

SHERIDAN COUNTY

Mandalin O. & G. Co.'s No. 1 Unknown, C SE SW SW Sec. 27-7-26w .....Abandoned 60 ft.

STAFFORD COUNTY

Boucher Oil's No. 1 Christenson, NW cor. Sec. 22-22-11w..Drlg. 1,885 ft.
Boucher Oil's No. 1 Groves, NE cor. Sec. 9-22-11w .....Cleaning out 2,035 ft.
Midwest's No. 36 Richardson, SE cor. Sec. 36-22-12w ....Shut down 2,050 ft.

STEVENS COUNTY

Argus Prod. Co.'s No. 1 Porter, C SW Sec. 27-32-37w ....Comp. 2,593-2,850 ft.; 2,000,000 ft. gas.
Argus Prod. Co.'s No. 1 Shaffer, C SE Sec. 6-35-38w .....Location.
Argus Prod. Co.'s No. 1 Stone, C NE Sec. 3-33-39w .....Location.
Agate Oil Co.'s No. 1 Gregory, NW SE Sec. 19-33-38w ....Drlg. 600 ft.
Argus Prod. Co.'s No. 1 Libon, C NE Sec. 2-34-39w .....Rig.
Argus Prod. Co.'s No. 3 Armstrong, C SE Sec. 3-34-39w..Drlg. 2,282 ft.
Argus Prod. Co.'s No. 1 Roach, C NE Sec. 34-32-38w .....Drlg. 2,000 ft.
Argus Prod. Co.'s No. 1 Asher, C NW Sec. 7-35-37w .....Drlg. 2,588 ft.
Argus Prod. Co.'s No. 1 Barrow, C SW Sec. 32-34-38w ...Rigging up standard tools 2,483 ft.
Mangle et al's No. 1 Youngren, C SE NW Sec. 24-32-39w .....Spudding; shut down.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w .....Shut down 1,600 ft.

SUMNER COUNTY

Magnolia Pet. Co.'s No. 1 Shriver, NW SW Sec. 9-33-2 ..Rig.
Disney et al's No. 1 Fay, C E half SE Sec. 14-34-1w ....Rig.
E. B. Shawver's No. 2 Work, C NE SE Sec. 29-34-2 ....Drlg. 1,483 ft.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w .....Rig.

TREGO COUNTY

Day et al's No. 1 Guyler, SW NE NE Sec. 36-12-21w ..Shut down 50 ft.

WILDCAT OPERATIONS IN NEBRASKA

FRANKLIN COUNTY

U. R. Drlg. Co.'s No. 1 Brunkle (twin well), C NW SW NE Sec. 2-3n-13w .....Rig.

CHASE COUNTY

Chase Pet. Co.'s No. 1 Ingold, C NE Sec. 24-6n-38w ....U. R. 5-in. csg.; T. D. 4,265 ft.

FURNAS COUNTY

Southwestern Pet. Corp. of Nebraska's No. 1 Montague, SE SW SW Sec. 28-1n-22w .....Shut down 1,750 ft.
Graham Bros.' No. 1 Edwards, NW SW Sec. 13-2n-22w..Shut down 3,250 ft.

PHELPS COUNTY

Trees Oil's No. 1 Bergan, Sec. 22-6-19w .....Rig on ground.

RICHARDSON COUNTY

Norton et al's No. 1 Albin, NE cor. Sec. 26-1-14 .....Miss. lime 2,200 ft.; landing 8-in. casing.

ROCK COUNTY

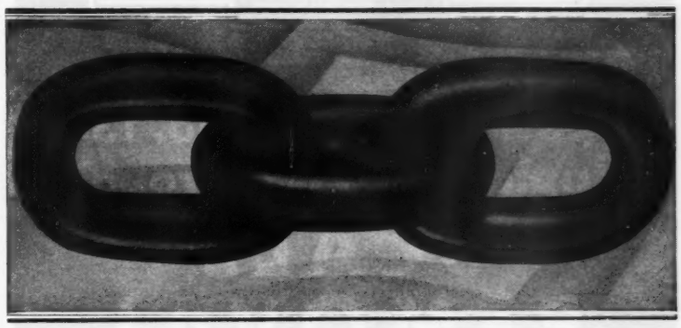
North Central Dev. & Drlg. Co.'s No. 1 Leonard, SE cor. NE Sec. 14-32-18w .....Drlg. 900 ft.

WEBSTER COUNTY

Mid-Kansas Exploration Co.'s No. 1 Platt, C SE one-half Sec. 2-1n-11w .....Shut down 555 ft.

TRADE **YALE** MARK

STEEL CHAIN



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SCALE REMOVAL

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Everyone who uses Dearborn Special Formula No. 134 likes it. The scale simply melts away. Time required is only one to three hours on average thicknesses. The disintegrated scale is then flushed out with water and metal surfaces are left clean as a whistle.

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NO-OX-ID
IRON+OX=RUST
TRADE MARK
The Original Rust Preventive

GASOLINE RECOVERY FROM REFINERY GAS

(Continued from Page 46)

but contains about 43 per cent of the total pentane and is the richest of all.

The remainder of the gas comprises the last class and is only available at atmospheric pressure. It is rich, containing about 42 per cent of the total pentane while its volume is 26.5 per cent of the total.

Absorption Plant

A comparison of the equipment and operation required to handle this gas production by the three general methods mentioned brings out the differences in these methods.

A plant to process this gas by the conventional absorption method, utilizing regular absorber oil, is shown diagramatically in Figure 1. Only essential equipment is indicated and all heating and cooling surfaces are shown separately, where in actual practice much of this surface would, of course, be combined by the use of heat exchangers.

The first kind of gas as classified above, the relatively dry gas at high pressure from the cracking units, should of course be utilized at the pressure already available and would be absorbed separately as shown at about 80 pounds pressure. The remainder of the gas, including that released from the pressure distillate when run to storage, is compressed and absorbed at about 30 pounds pressure, this pressure being that generally accepted as giving an economical balance between increasing compression costs and decreasing oil circulation as the pressure is raised. The combined

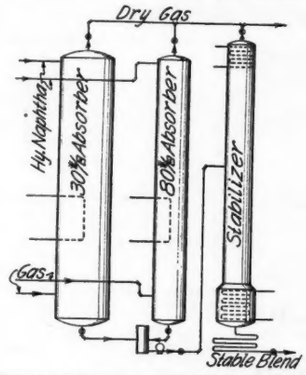


Figure 3—Recovery plant which uses heavy naphtha as absorber oil.

rich oil is stripped in the still shown at about 50 pounds pressure and 350° F. and the distillate is finally stabilized at 100 pounds per square inch and about 200° F. The uncondensed gas from the still may be returned to the 30-pound absorber for reabsorption or, as is sometimes done, reabsorbed in a separate tower.

In order to secure a final recovery of 40 per cent of the available butane we may assume that it will be necessary to absorb 60 per cent, subsequently rejecting 20 per cent in the stabilizer. Using an absorber oil of 375° to 475° F. distillation range, molecular weight about 170, and gravity about 42.5 A.P.I., we may estimate the performance of the absorber as shown in Table 2.

The heat liberated by the absorption would result in a rise in temperature in the low pressure absorber of about 40° making advisable the use of intercooling in the tower to absorb at least part of this heat. For purposes of comparison it will be assumed that all of this heat is absorbed in both towers by means of suitable cooling coils.

The rich oil, in being stripped, will require about 7,750 B.t.u. per barrel of crude, this heat to be supplied by steam and heat exchange to furnish the sensible heat and the heat of vaporization of the operation. In addition, open stripping steam to the extent of about 0.1 pound per gallon of absorber oil will be required to clean up the lean oil, adding about 650 B.t.u. per barrel of crude to the total heat requirement of the distillation and a similar amount of condensing and cooling capacity to the 7,750 B.t.u. already noted.

Assuming for the purpose of this discussion that all of the material absorbed is recovered as raw gasoline from the still, the composition of this product on a weight basis will be:

	Per cent
Methane	trace
Ethane	2.4
Propane	14.2
Butanes	37.5
Pentane and heavier	45.9

The function of the stabilizer is to discard all of the methane, ethane and propane, and one-third of the butanes, retaining as stable gasoline the remainder of the butane and all of the heavier material. This operation may be accomplished at a pressure of about 100 pounds per square inch and a temperature of about 200° F. The heat requirement will be about 1,000 B.t.u. per barrel of crude and both heating and cooling surface must be furnished for this quantity of heat transfer.

Propose Stabilizer

Figure 2 shows the writer's proposal for the arrangement of a plant operating by the method of stabilizing the pressure distillate. The plant differs principally from any the writer has seen proposed in that the handling of the rest of the gas, not affected by the actual stabilization of the distillate, is intimately tied up with the stabilizer.

The pressure still distillate, instead of being released to atmospheric pressure, is stabilized as shown at a temperature of about 225° F. and 100 pounds per square inch pressure. The hot stabilized distillate is then flashed into an atmospheric pressure tower where the lighter products from butane to heptane are taken off with the aid of open steam as a separate cut amounting to about 15 per cent of the contained gasoline and finished except for sweetening which may be accomplished by blending with the heavy naphtha cut from the rerun stills which normally requires sweetening. The remainder of the distillate is now a topped product with an initial boiling point of about 200° F. and constitutes an excellent medium for absorbing the rest of the gas, made up of the first and third groups as previously classified. The dry gas from the cracking units is available at high pressure and it appears advisable to compress the remainder of the gas, in volume about half the dry gas, up to this pressure and absorb the entire volume at about 80 pounds per square inch. A sufficient quantity of the topped distillate is used for this purpose and the resultant rich oil is recirculated back to the stabilizer where the undesirable products are eliminated and the desirable light components are flashed off as already described. The net topped distillate is run to storage to be later treated and rerun to produce gasoline.

The plant would be run to give the same rejection of light gas and the same recovery of products as the plant first described. The plant as a whole is obviously much simpler than the first, the still being entirely eliminated and about 75 per cent as much gas being handled in absorbers. The stabilizer has much more work to perform and the total heat requirement of the operation is more than that of the first operation. However, the temperature of the stabilizer is rela-

TABLE 2—ABSORBER PERFORMANCE

	30 lbs./sq. in absorber		80 lbs./sq. in. absorber	
Gal. abs. oil per bbl. crude	4.5		2.0	
Cubic feet gas handled per barrel crude	100		100	
	Per cent	Pounds	Per cent	Pounds
Pentane and heavier absorbed	95	1.927	95	0.359
Butanes absorbed	60	1.500	60	0.365
Propane absorbed	17.5	0.484	17.5	0.223
Ethane absorbed	4.5	0.066	4.5	0.053
Methane absorbed	trace	trace	trace	trace
Total		3.977		1.000
Heat liberated	610 B.t.u.		150 B.t.u.	

tively low, giving a high temperature difference in the heat transfer equipment resulting in a reduction of the discrepancy as far as heating surface is concerned. Moreover, the heat utilized in producing the light distillate relieves the rerun stills of a corresponding amount of work and should be credited to this operation.

In cases where the cracking units are large, it would appear that the vapor could be taken only partially cooled from these units to the stabilizer, reducing the amount of cooling surface at the cracking units proper and incidentally producing all of the cracked gas in a dry condition, eliminating the necessity of absorbing the "dry" gas normally produced.

Assuming that the pressure distillate contains 70 per cent gasoline and that the cracking units produce gasoline to the extent of 30 per cent of the crude, the net distillate handled will amount to 42.8 per cent of the crude or 18 gallons per barrel of crude. With the molecular weight of the topped distillate used for absorption running about 138, 2.6 gallons will be circulated in the absorber per barrel of crude and will increase the amount of material run to the stabilizer by that amount plus the light material absorbed. The total heat requirement of the stabilizer will be about 12,200 B.t.u. per barrel of crude with the same amount of cooling capacity needed in the combined stabilizer and flash tower. About 500 B.t.u. of cooling will be required in the absorber, on the basis of removing all of the heat liberated by the absorption.

Use Heavy Naphtha

Figure 3 illustrates a plant using heavy naphtha as the absorbent. As already pointed out, this is getting back to the original refinery process, recently discarded in many plants. It is submitted, however, that the cause of failure of these old plants lies in the equipment used rather than the absorbing medium, and that the great simplicity of equipment and operation warrants the careful consideration of this type of installation.

The heavy naphtha will be a cut having a distillation range of 240° F. to 430° F., with a gravity of about 47 and a molecular weight of 140. About 3.75 gallons will be used as absorber oil in the 30-pound absorber and 1.65 gallons in the 80-pound absorber per barrel of crude run. The extraction will be the same as for the first type of plant described and the heat liberated by the absorption will also be the same. The heat requirement of the stabilizer, operating at 225° F. and 100 pounds pressure will be about 3,750 B.t.u. per barrel of crude run, with an amount of cooling surface capable of absorbing the same amount of heat being required.

Comparison of Three Types

In Table 3 the main features of each type of plant are summarized for comparison.

The relative advantages of simplicity, low first cost, and low operating cost of the heavy naphtha type of plant are quite apparent. The total amount of naphtha required represents only about 22 per cent of the total gasoline produced so that it is seen there is an ample supply of this material with a surplus for the small specialty business in special naphthas which many refineries produce.

The comparison between the first and second types of plant is not so clear cut. It has already been pointed out that the second type enjoys a number of advantages which offset the greater heat requirement.

Many plants incorporate means of stabilizing the light gasoline from their crude stills and pressure distillate rerun stills to reduce storage loss and distillation loss. This undoubtedly makes for better gasoline and is well worth while. The light gasoline may run as high as 1.5 to 2 per cent propane, with traces of ethane and from 5 to 8 per cent butanes, depending upon operating conditions. The ethane and propane should be eliminated and this, of course, may be accomplished in connection with the stabilizing unit. It should be pointed out that the second type of plant, in stabilizing the entire pressure distillate, eliminates the need of stabilizing the light gasoline from the rerun stills, thus affording another advantage for this type of unit.

In conclusion the writer wants to repeat the original premise that the problem of vapor recovery systems in refineries is not identical with the recovery of gasoline from natural gas and that we should not, without careful consideration of all the factors involved, follow natural gasoline methods which have been highly specialized to suit the peculiar needs of that branch of the industry.

TABLE 3—COMPARISON OF PRINCIPAL FEATURES OF THREE TYPES OF PLANT.

(All quantities based on 1 bbl. of crude run)

	Absorber oil type	P.S. dist. stabilizing type	Hy. naphtha type
30-pound absorber:			
Cubic feet gas handled	100	None	100
Gal. abs. oil circulated	4.5	None	3.75
80-pound absorber:			
Cubic feet gas handled	100	153	100
Gal. abs. oil circulated	2.0	2.6	1.65
Still:			
Gal. oil handled	7.5	None	None
Max. temp., °F.	350	...	...
Stabilizer:			
Gal. oil handled	1.00	21.6	6.40
Max. temp., °F.	200	225	225
Heat required:			
Still—closed steam	7,750 B.t.u.	None	None
Still—open steam	650 B.t.u.	None	None
Stabilizer	1,000 B.t.u.	12,200 B.t.u.	3,750 B.t.u.
Total heat	9,400 B.t.u.	12,200 B.t.u.	3,750 B.t.u.
Cooling required:			
30-pound absorber	610 B.t.u.	None	610 B.t.u.
80-pound absorber	150 B.t.u.	500 B.t.u.	150 B.t.u.
Still	8,400 B.t.u.	.....	.....
Stabilizer	1,000 B.t.u.	12,200 B.t.u.	3,750 B.t.u.
Total cooling	10,160 B.t.u.	12,700 B.t.u.	4,510 B.t.u.

CENTRAL WEST FIELDS

(Continued from Page 66)

of gas. **Big Four Oil & Gas Co.** abandoned its third test on the G. T. Sloan farm, in Section 18, Washington Township, at 1,467 feet. It has previously been reported as a producer.

Jay County—Dee Werner has completed a well on the Oscar Currant farm near Redkey. Production is coming from the Trenton, and it is rumored other tests will be drilled.

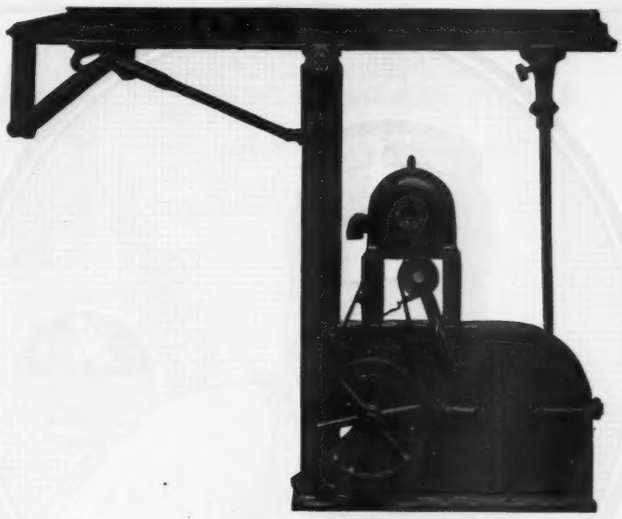
Knox County—Shell Petroleum Corp. is said to have recently acquired several hundred acres of additional leases in the southern part of this county.

Lake County—C. W. Houk and others were last reported being down 2,458 feet in their test near Highland, and still drilling. They are in the Eau Claire formation.

Monroe County—The test drilled by the Petroleum Exploration Co. on the State Life Insurance Co.'s farm in Salt Creek Township, Section 10, was dry and abandoned. Petroleum Exploration Co., along with the Ohio Oil Co., completed a gas well at 744 feet on the John Young heirs' farm in Section 8, Benton Township, near New Unionville. The top of the Corniferous limestone was found at 691 feet, and the initial production was 1,000,000 feet.

Morgan County—Petroleum Exploration Co. is drilling on its acreage in the southwestern part of the county.

Perry County—Roger E. Williams and



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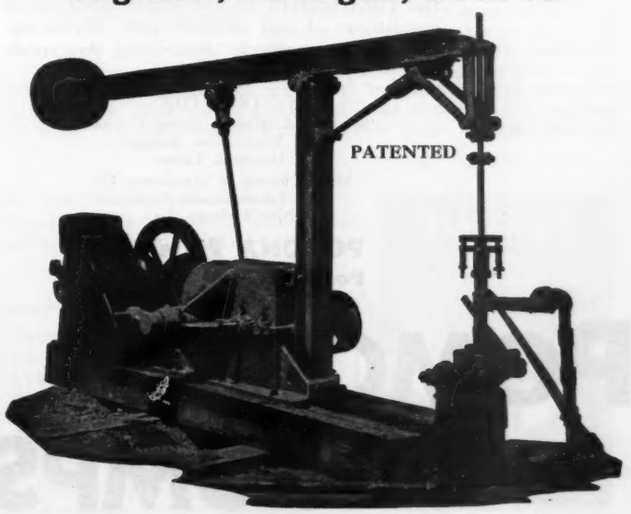

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POMONA PUMPS

others abandoned their second well on the John Backer farm at the edge of Troy. It had been completed at 845 feet and showed a small initial production. Perry Oil & Gas Co. is still drilling on the August Braunicker farm, having drilled through the Jackson sand. Conyers, Roetzel & Bugg are down 300 feet in their No. 1 Frank Casidy, Section 25, Clark Township. This is 1,500 feet southeast of their No. 1 DeLaise. Ohio Oil Co. abandoned its test on the Alphonso Dupont farm in Section 7, Anderson Township, and started another test on the William Epple farm, 3½ miles northeast of New Boston, in Section 8, same township. A. F. Glenn and others are drilling on the John Ramsey farm in Section 18, Tobin Township.

Pike County — Indiana Southwestern Gas & Utilities Corp. has leased a block of acreage near Cato and expect to test it soon. Risher and others have completed a well on the Frank Anderson land in Washington Township at 1,138 feet. It is pumping 3 bbls. daily. P. C. Anderson and others are cleaning out No. 1 A. Atkinson in Logan Township. It is reported producing 15 bbls. from 1,363 feet. William Bell and others completed an excellent well on the Berkley Hill farm in Clay Township, It started with 100 bbls. and 1,000,000 feet of gas from the Cunningham sand at 1,525 feet. No. 6 Della Kime, drilled by Dr. C. C. Taliaferro, in Location 12, Clay Township, is shut down at 1,442 feet. William Bell and others are cleaning out at 1,323 feet in the Fred Lindy well in Clay Townbbls. from 3,648 to 3,702 feet, total depth ship. Mahutska Oil Co. completed a 50-bbl. well in its No. 2 Jess Lindy in Survey 9, Clay Township, the sand being found at 1,563-83 feet. Dr. C. Taliaferro completed No. 5 Mary McAtee, Location 12, Clay Township, in the Hightower sand at 1,117 feet, where it produced an initial of 100 bbls. Illpava Oil Co. completed a productive well on the Bessie Miller lease, Section 31, same township. In Washington Township, C. E. Wohmer and others abandoned their test on the R. and F. Morrison lease at 1,133 feet after finding only a slight show of gas. H. C. Darby & Co. abandoned No. 4 George Stewart, Section 23, Logan Township, at 1,369 feet.

Spencer County—Packard Oil Co. completed a sixth well on the Lee Carlton farm in Huff Township, 200 feet southeast of No. 1. Production was obtained from the Cunningham sand. No. 2 Adolph Grass, drilled on the adjoining farm by Theodore Seitz, is reported making 10 bbls. with salt water. The Missouri-Kansas Pipe Line Co. abandoned its test on the M. Spayd farm in Section 25, Clay Township, but expecting to start another test nearby.

Sullivan County — Several companies are said to be leasing large blocks along the western part of the county from Graysville to the Siosi Field. Shell Petroleum Corp. and Ohio Oil Co. are leasing along both sides of the Wabash River west of Carlisle, and will possibly test with the core drill. Kansas and Kentucky Gas Co. is said to be planning a test on acreage northeast of Hymera. Knox & Murdick are down 550 feet in the C. L. Davis shallow test which they are drilling in Turman Township for Charley Scott. No. 1 C. W. Scott, in the south part of the Siosi Field, has been drilled a little too deep by Scott, Whitlock & Morris in an attempt to find the new deeper pay, and they are now trying to shut off bottom water. No. 4 Scott was deepened and shot and is now making about 70 bbls. daily. No. 3 will probably be deepened also. No. 4 Ekmore Williams, at the north edge of Section 5, in the Siosi Field, has been completed and shot by Wyman & Brown for the Twin Creek Oil Co. It is producing about 100 bbls. per day on the beam. H. H. Adkins is starting a well on the Bert Wood farm, 2½ miles west of Farmersburg, in Curry Township, for Ellis & Thomas. The latter have a large block of acreage extending into Vigo County, and may make other tests.

Vigo County—Thomas & Yeager have cleaned out the old Faulkes well in Terre Haute, and it is making about a barrel per day. It will likely be deepened. This well, which has been abandoned for several years, is about one block from the famous Proc well, plugged over a year ago. Both wells were drilled more than 40 years ago. Siosi-Western Oil Corp. abandoned its test on the Anna E. Goodwin lease in Section 23, in Sugar Creek Township, near Liggett, at about 2,000 feet. The formations were found higher than in the Siosi Field, but contained salt water. This is the second test on the farm, the first having developed a crooked hole at 600 or 700 feet. No. 2 Cash Piety, drilled by the Ohio Oil Co. in the extreme north end of the Siosi Field, is down 1,950 feet, after having been delayed by slight repairs. Siosi's tenth well on the upper Riggs lease has been plugged because of the excessive water which was being pumped with the oil. It was located in the extreme northeastern corner of Section 31, and found the formation too low. No. 19 on the lower Riggs lease, when completed, made about 65 bbls. natural. The rig from this well was moved one location east, where it is drilling No. 20 Riggs at a depth of 1,450 feet. Siosi Corp. has two other rigs busy in the field cleaning out and repairing several wells damaged by high water.

Warrick County—Indiana Southwestern Gas & Utilities Corp. is drilling two wells in Hart Township, one on the J. T. McWilliams farm, SW, Section 33, and the other on the Henry Schumaker farm, NE cor., Section 21.

ILLINOIS

Only three completions were reported from the various Illinois fields, two being dry holes and a pressure well drilled by the Warner-Caldwell Oil Co., No. 15 on the C. S. Jones farm, Section 6, Robinson Township, Crawford County. Broken sand was found from 920 to 1,011 feet.

In northwestern Illinois, W. T. Cole and others drilled a test, 400 feet from the north line and 200 feet from the east line of the William Aleshire farm, SW, Section 19, Lemoine Township, McDonough County, which proved a dry hole.

In the Dupo Field of Sugar Loaf Township, St. Clair County, E. J. Lee and others' No. 1 on the Harry E. Reynolds lots, Section 21, was dry and has been abandoned.

In Dennison Township, Lawrence County, the Ohio Oil Co. abandoned No. 2 Louis F. Gould, SE, Section 1; No. 2 Harriett Leighty, SE, Section 3, and Nos. 11, 12 and 13 J. W. Clark No. 2 farm, SE, Section 3. John Phipps abandoned No. 1 J. E. Dennison, SW, Section 34, and Nos. 4 and 7 on the William E. Robins, also in the SW, Section 34. In Petty Township, same county, the Ohio Oil Co. abandoned No. 1 Rose B. Shipman, SE, Section 25; No. 1 Dora A. Hipshire, NW, same section, and No. 23 A. R. Applegatem, SE, Section 12. Big Four Oil & Gas Co. abandoned No. 1 on the Lillie Caudle, NE, Section 36, Christy Township, same county.

In Wabash Township, Wabash County, the Adams Corner Oil Co. pulled out and abandoned No. 1 W. O. Johnson, NW, Section 6, on account of water breaking in.

Petroleum Exploration Co. is reported to have made a location for a test in Cumberland County to the west of the old Casey Field on the O. D. McFarling farm. Dill and others are drilling on the S. D. Akeman farm, Section 35, Prairie Township, Crawford County.

BLACK BAYOU PROSPECTING

HOUSTON, Tex., June 16.—A deal whereby the Freeport Sulphur Co. is given the right to prospect for sulphur on Shell Petroleum Corp.'s Black Bayou Dome in northwestern Cameron Parish, La., has been consummated here. Shell Petroleum Corp., which discovered the dome geophysically in 1928, has been developing the prospect for oil, proving shallow cap rock production around 900 feet as well as deep flank sand production on the north and southeast sides of the dome. That the cap rock will be a commercial producer of sulphur was indicated in showing encountered in Shell Petroleum Corp.'s oil tests.

DUTIES OF PIPE LINE WALKER COVERED THOROUGHLY IN POEM

Bristow Man Uses Rhyme to Explain His Duties.

District meetings are held at regular intervals by the Sinclair Pipe Line Co. Employes in the different districts are asked to prepare papers on or to discuss subjects in which they are particularly interested. In this way various phases of the work of the pipe line company are explained and all employes become more or less familiar with the work and problems of other workmen. Proper methods and practices, safety, care of equipment, material and supplies, lubrication of machinery and other subjects form topics of discussion at these meetings.

Recently L. E. Lewellen, a line walker of the company with headquarters at Bristow was asked to prepare a paper on the duties of a line walker. Mr. Lewellen submitted the following poem which pipe line men state covers the duties of a line walker more thoroughly, perhaps, than a majority of the articles which have been written on the subject:

L. E. Lewellen

By L. E. Lewellen
Sinclair Pipe Line Co.

I am a field line walker and live on a lease,
One mile south of Bristow, and two miles straight east.
I get up in the morning and put on my clothes,
Take the Tulsa World and read the news.
And after breakfast I hit the dew,
Get wet to my hips, and higher too.
I must go through all kinds of weather,
The gauger and I must work together.
See each other and be man to man,
For each other we must understand.
If it rains hard at night, and raises the creeks,
I should go to all creek crossings and look for leaks.

I would start down on Rock Creek, and go to McNac,
There the Gauger should meet me, I'll not take the back track.
If I get there first, I rest, for I'm hot,
He will soon be there, and we go to Bucktrot.
He starts the pump, while I stand by,
And I wait a while till the pressure gets high.
Then I start out for Bristow, and must bear in mind,
That we want the oil to stay in the line.
I must look for washouts, bad props and leaks,
If I find a leak, must fix it if it takes a week.

If I find anything I can't manage myself,
I phone and the Boss will send me some help.
And if by chance I should find a break,
I rush back to the tank, for there is money at stake.
I must shut down the pump and close the stop,
And do my best to save every drop.
Then I report to the office, and tell the Bosses,
And they will come out and take care of the losses.
I must watch for the graders, dead trees, and blasts,
Better look pretty good, and don't go too fast.
Some folks think a line walker's duties are few,
But if he's a good one, he has plenty to do.

Some will walk line the most of their life,
And never will think they need a corn knife,
To cut weeds and limbs, and all such as that,
A limb's aggravating when it knocks off your hat.
Just report anything you are able to see,
And then you will of some value be.
Now I have a few lines of the line walker's toil,
But haven't told what to do with the wasted oil.
If a leak happens to be in a field,
Don't let it get on the crop, as it spoils the farmer's yield.
And if you don't clean it up, he raises heck,
'Till the Boss comes out with a Sinclair check.
Just dig a hole, not too close to the line,
And burn up your oil, and you get along fine.

Get along with the farmer, I find that it pays,
For he has watermelons, when we have summer days.
Now I don't look at just lines alone,
Remember they have lots of telephones.
If the wires get together, and they're at a loss,
A line walker might see where the lines are crossed.
So let me walk lines for Mr. Sinclair,
And when I am through, go to heaven, where the line walkers are.

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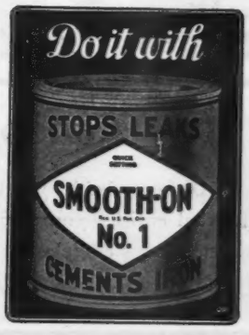

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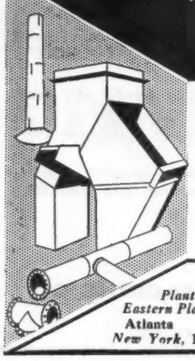

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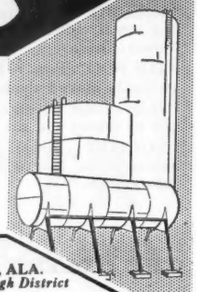

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Week Ending May 28

TEXAS PANHANDLE

Carson County

Empire Gas & Fuel Co.'s No. 25 S. B. Burnett estate, at the C SW, Section 100, Block 5, I.&G.N. Survey.

Gray County

Gulf Production Co.'s No. 5 J. M. Saundters, trustee-A, 330 feet south and west of the NE cor. SW, Section 40, Block 3, I.&G.N. Survey. Amalmagated German-American Oil Co.'s No. 1 L. H. Webb, 330 feet north and east of the SW cor. E half NW, Section 12, Block A-9, H.&G.N. Survey. Nelson and others' No. 1 J. K. Crews, 330 feet north and west of the SE cor. NW, Section 12, Block 25, H.&G.N. Survey. McIlroy Oil Co.'s No. 2 J. E. Arnold, 990 feet north and 330 feet east of the SW cor. NW, Section 139, Block 3, I.&G.N. Survey. Magnolia Petroleum Co.'s No. 1 J. M. Saunders (Midwest), 330 feet south and east of the NW cor. SE, Section 40, Block 3, I.&G.N. Survey.

Hutchinson County

Antelope Creek Oil Co.'s No. 4 J. M. Sanford, 330 feet north and east of the southwest corner of the south 160 acres of Section 82, Block 46, H.&T.C. Survey. Sinclair Oil & Gas Co.'s No. 1 Johnson Brothers, 330 feet south and west of the NE cor. NW, Section 32, Block Y. Skelly Oil Co.'s No. 1 Johnson Brothers (Section 30), 660 feet north and east of the SW cor. SE, Section 30, Block Y. Smith & McDaniel's No. 2 H. C. Pitcher and others-A, 330 feet north and east of the SW cor. E half SW, Section 19, Block M-21, T.C.R.R. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Brown and United Production Co.'s No. 7 W. H. Taylor, 150 feet south and 530 feet east of the NW cor. N half, Lot 15, Section 17, A.T.N.C.L. Survey. W. B. Omohundro's No. 1 L. F. Wilson, 150 feet north and west of the southeast corner of the west 40 acres of the north 80 acres of Lot 1, Section 108, A.T.N. C.L. Survey. W. C. Young's No. 1 W. H. Taylor, 150 feet south and east of the NW cor. SE SE, Section 1, S.P.R. R. Survey, A-428. L. T. Burns and others' No. 3 H. F. Harmel, 150 feet north and 450 feet east of the southwest corner of the south 40 acres of the E half, Section 25, G. P. Meade Subdivision, L. M. Pasture Survey. King & Hays' No. 1 J. H. Turbeville, 150 feet south and west of the northeast corner of the north 20 acres of the NW, Section 62, Jefferson County School land, A-240. Kisk Oil Co.'s No. 1 G. A. Lauster-B, 450 feet south and 150 feet east of the NW cor. NE SW, Section 3, B. B.B.&C. Survey, A-51. G. L. Pace's No. 1 F. C. Green, 150 feet south and 1,650 feet east of the northwest corner of the F. C. Green 1,290-acre tract out of the Joseph Levine Survey, A-259. Perkins & Cullum's No. 1 Falls County School land (Hanszen), 150 feet north and east of the SW cor., Section 11, Falls County School land, A-130. O. R. Tantenhaha's No. 1 G. G. Dickey, 150 feet north and west of the southeast corner of the north 40 acres of the south 60 acres of G. G. Dickey's 94.6-acre tract out of Section 140, Club Ranch Subdivision.

Baylor County

Consolidated Oil Co. and others' No. 18 W. H. Portwood, 1,441 feet north and 150 feet west of the SE cor. SW, Section, 1,281, T.E.&L. Survey. W. W. Silk's No. 1 W. H. Portwood, 150 feet north and east of the SW cor. N half, Section 3,143, T.E.&L. Survey.

Brown County

E. T. Green and others' No. 1 J. W. Shore, 150 feet north and 400 feet east of the southwest corner of the J. W. Shore 132.5-acre tract out of the C. B. Banister Survey, No. 627. H. A. McLean and others' No. 1 H. Byler, 450 feet south and west of the NE cor., Section 31, H.T.&B. Survey. Woodley Petroleum Co. and others' No. 2 E. P. and W. H. Kilgore, 150 feet south and 950 feet east of the northwest corner of the Hrs. N. B. Mitchell Survey, No. 153. J. H. Davis' No. 1 E. R. Gentry, 1,469 feet southeast of the northwest line and 375 feet northeast of the southwest line of the J. B. Beale Survey, No. 145. Tex-Cal Oil Co.'s No. 1 W. A. McEntire, 150 feet south and west of the northeast corner of the W. A. McEntire tract out of Section 11, H.T.&B. Survey.

Callahan County

Humble Oil & Refining Co. and Bateman and others' No. 3 M. Alexander, 2,734 feet south and 820 feet west of the NE cor., Section 23, E.T.R.R. Survey. Lewis Production Co.'s No. 2 M. Alexander, 460 feet north and 160 feet west of the SE cor. SW NE, Section 23, E.T.R.R. Survey. F. M. Taylor's No. 2 A. L. Biggerstaff, 195 feet north and 525 feet east of the SW cor., Section 310, S.P.R.R. Survey.

Clay County

R. Dawson and others' No. 2 W. Applegate and others, 250 feet north and 175 feet west of the most southerly southeast corner of the W. Applegate and others 50-acre tract out of Section 74, Parker County School land, A-374.

Coleman County

Fox & Tucker's No. 1 H. Thate, 450 feet north and east of the SW cor., Section 7, Comal County School land, No. 181. McDonald-Campbell and others' No. 1 L. Weaver-C, 590 feet south and 150 feet west of the NE cor., Lot 15, A. Gabel Survey, No. 271. Fuhrman Petroleum Co.'s No. 1 J. S. Fleming, 150 feet north and west of the SE cor., Lot 1, R. Perry Survey, No. 95.

Comanche County

Sun Oil Co. and others' No. 1 F. Wilhelm, 660 feet north and east of the southwest corner of the Ashbell Smith Survey, No. 25.

Pecos County

Oregon Oil Corp.'s No. 2. I. G. Yates, 150 feet north and east of the SW cor., Section 58, Block 1, I.&G.N. Survey. Simms Petroleum Co.'s No. 6 M. A. Smith-A, 330 feet north and 210 feet west of the southeast corner of its lease "A" out of Section 24, Block 194, G.C. &S.F. Survey. Gulf Production Co.'s No. 32 I. G. Yates, 1,015 feet north and 10,810 feet east of the southwest corner of the Runnels County School land, A-2,169. Southern Crude Oil Purchasing Co.'s No. 2 H. J. Eaton, 2,310 feet northeast of the southwest line and 2,310 feet northwest of the southeast line of Section 35, Block 3, H.&T.C. Survey. Same company's No. 7 J. H. Tippett-A, 150 feet south and west of the southwest corner of the Arnold & Barrett Survey, No. 539, A-3, and located in Section 61, Block 194, G.C.&S.F. Survey.

Eastland County

Lone Star Gas Co.'s No. 7 W. H. Grove, 2,190 feet south and east of the NW cor., Section 487, S.P.R.R. Survey. Lone Star Gas Co.'s No. 1 G. P. Mitcham, 2,244 feet south and 4,372 feet east of the NW cor., Section 469, S.P.R.R. Survey.

Garza County

M. L. Richards' No. 1 K. Stoker, 330 feet south and east of the NW cor., Section 2, Block 2, G.H.&H. Survey.

Glasscock County

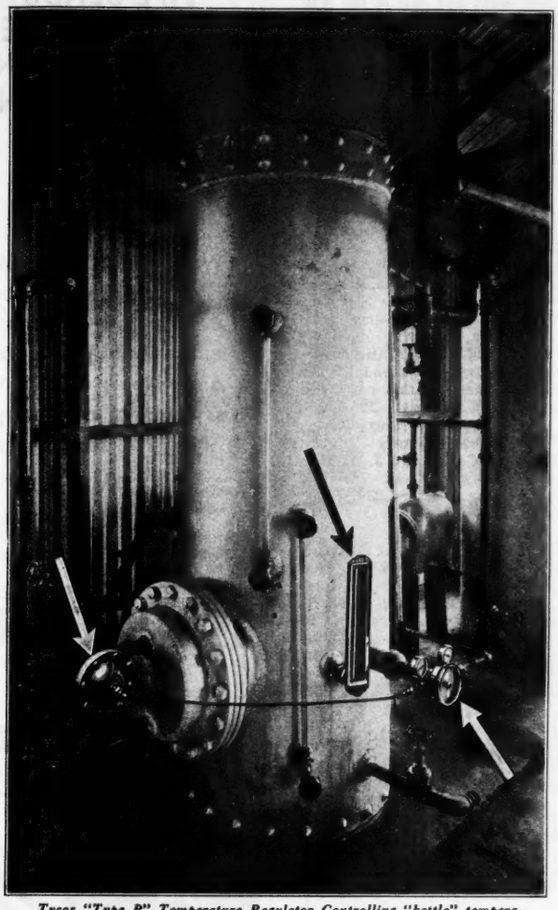
Associated Oil Co.'s No. 1 R. C. Coffee, 330 feet south and 2,310 feet east of the NW cor., Section 27, Block 33, Township 2s, T.&P. Survey. California Co.s No. 2 J. W. Baker, 2,970 feet south and 1,650 feet east of the NW cor., Section 23, Block 33, Township 2s, T.&P. Survey. Kirby Petroleum Co. and others' No. 6 J. J. Phillips, 2,310 feet south and 1,650 feet east of the NW cor., Section 23, Block 33, Township 2s, T.&P. Survey.

Jack County

F. H. E. Oil Co.'s No. 5 J. Leffel, 1,157 feet north and 206 feet east of the southwest corner of the east 84 acres of the J. Leffel 227-acre tract out of the I. Hughson Survey, A-256.

Montague County

Arkansas Fuel Oil Co.'s No. 1 I. H. Howard, 150 feet north and east of the SW cor., Section 48, Kaufman County School land, A-407. American Refining



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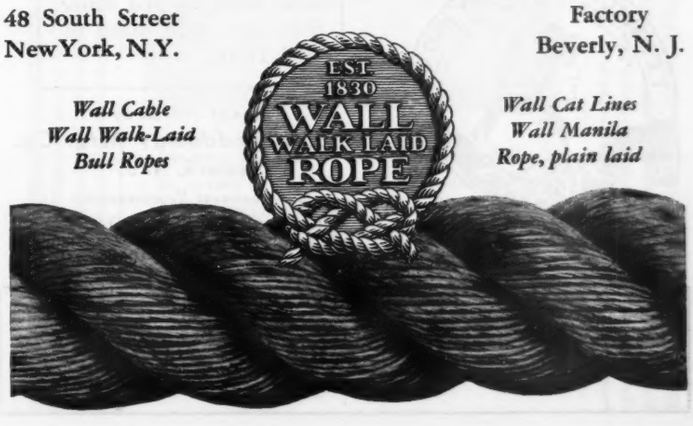

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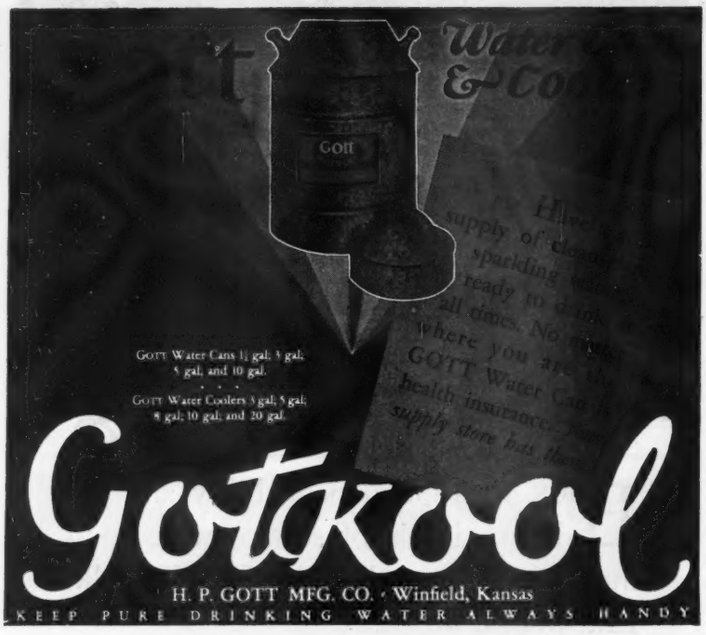
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Co. and Props. & King's No. 1 W. J. Ball, 150 feet south and east of the NW cor. SW, Section 2,882, T.E.&L. Survey.

Palo Pinto County

B. Wickens and others' No. 1 W. J. Heath, 368 feet south and west of the NE cor. S half, Section 66, League 3, Burleson County School land. B. Wickens and others' No. 1 J. L. Ringo, 330 feet north and 1,310 feet east of the SW cor., Section 36, League 2, Burleson County School land.

Shackelford County

Carter Development Co.'s No. 1 J. H. Nail (Section 50), 150 feet north and 1,320 feet east of the SW cor., Section 50, Block 10, E.T.R.R. Survey. Gilman & McMurray's No. 2 H. Herron, 450 feet north and 150 feet east of the SW cor., Section 10, Block 11, T.&P. Survey.

Taylor County

W. G. Clark and Humble Oil & Refining Co.'s No. 1 J. E. Kendall, 250 feet south and east of the northwest corner of the J. E. Kendall 224.5-acre tract out of the W. Avery Survey.

Throckmorton County

Gulf Production Co.'s No. 1 J. A. Matthews, 1,800 feet south and 750 feet west of the NE cor., Section 234, Block 10, E.T.R.R. Survey.

Wilbarger County

Fain-McGaha Oil Corp.'s No. 21 Waggoner-L, 605 feet south and 600 feet east of the northwest corner of its lease "L" out of Section 21, Block 4, H.&T.C. Survey. Same corporation's No. 27 Waggoner-W, 1,015 feet south and 1,430 feet east of the northwest corner of its lease "W" out of Section 32, Block 4, H.&T.C. Survey. Phillips Petroleum Co.'s No. 1 W. T. Waggoner-KK, 200 feet north and west of the SE cor. NW NE, Section 29, Block 4, H.&T.C. Survey. Same company's No. 1 W. T. Waggoner-LL, 200 feet north and west of the SE cor. NW NW, Section 30, Block 4, H. &T.C. Survey. The Texas Company's No. 382 Waggoner, 330 feet south and 1,598 feet west of the NE cor., Section 4, Block 13, H.&T.C. Survey. The Texas Company's No. 6 Waggoner-D, 2,435 feet south and 2,373 feet west of the NE cor., Section 43, M.E.P.&P. Survey.

Young County

Adams-Smith and others' No. 1 J. P. Dunagan, 150 feet south and 1,360 feet west of the NE cor., Section 170, T.E.& L. Survey. George Alexander, Jr.'s No. 1 S. R. Jeffery, 150 feet north and east of the SW cor. N half NE, Section 51, T.E.&L. Survey. Benson Brothers' No. 1 J. M. Davidson, 1,985 feet south and 1,-642 feet east of the NW cor., Section 272, T.E.&L. Survey. Braselton Brothers and others No. 1 W. D. Hall, 150 feet north and 900 feet west of the southeast corner of the north 26 acres of the W. D. Hall 186-acre tract out of Section 167, T.E.&L. Survey. Bridwell Oil Co.'s No. 1 Mrs. K. H. Haley, 1,716 feet south and west of the NE cor., Section 293, T.E.&L. Survey. Daniels-Adair and others' No. 2 J. H. Wilson, 150 feet north and east of the southwest corner of the south 27 acres of the J. H. Wilson 82-acre tract, and located in the W. H. Keen Survey, A-1,932. Duffield and Howard Petroleum Co.'s No. 1 J. D. Lowe, 150 feet south and 516 feet west of the NE cor. N half SW, Section 250, T.E.&L. Survey. N. D. Goldsmith and others' No. 1 I. E. Mercer, 150 feet north and east of the southwest corner of the south 20 acres of the I. E. Mercer 120-acre tract and located in the W. H. Keen Survey A-1,932. T. L. Griffin and others' No. 1 H. L. Morrison, 150 feet south and west of the NE cor., Lot 3, Section 159, T.E.&L. Survey. H. & W. Drilling Co. and others' No. 1 H. Hausley, 150 feet north and west of the southeast corner of the south 40 acres of the H. Hausley 110-acre tract and located in the W. H. Keen Survey, A-1,932. Halmack Oil Co. and others' No. 6 J. D. Carpenter, 150 feet north and 450 feet west of the SE cor. N half SW, Section 164, T.E.&L. Survey. G. B. Hamilton's No. 1 J. K. Thomas, 900 feet north and 450 feet west of the SE cor., Section 155, T.E.&L. Survey. F. Hynes and others' No. 1 W. S. Husted, 1,720 feet north and 785 feet east of the SW cor. W half SW, Section 241, T.E.&L. Survey. C. J. Kliner's No. 2

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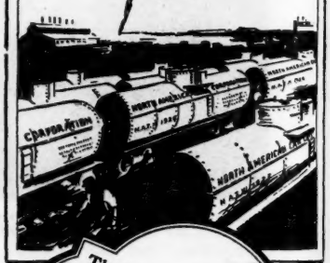

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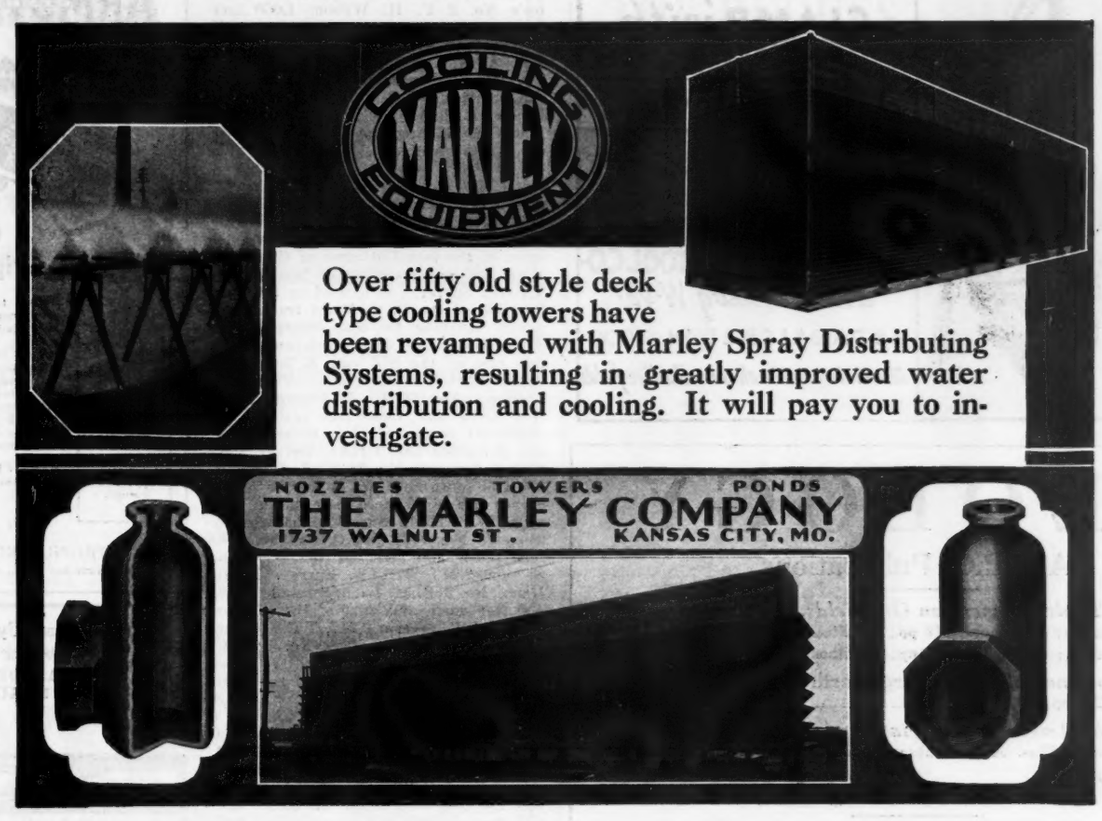
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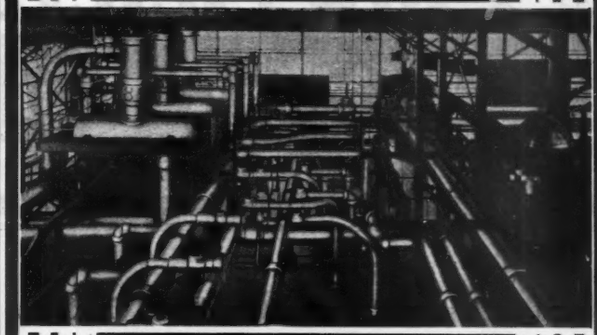

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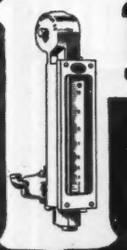

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A. E. Logan, 483 feet south and 1,428 feet west of the NE cor., Section 225, T.E.&L. Survey. Morris & Dunn, trustee's No. 2 F. H. Wilson, 1,060 feet north and 1,300 feet east of the SW cor., Section 1,473, T.E.&L. Survey.

C. A. Norment's No. 1 W. R. Smedley, 450 feet south and east of the NW cor., Section 26, T.E.&L. Survey. Panhandle Refining Co.'s No. 1 G. W. Hutchings, 150 feet south and 1,025 feet east of the NW cor., Section 230, T.E.&L. Survey, being 150 feet south and east of the northwest corner of its 64.77-acre lease. Panhandle Refining Co.'s No. 1 D. C. Ward, 150 feet south and west of the southwest corner of the north 80 acres of the east 150 acres of the D. C. Ward 220-acre tract out of Section 274, T.E.&L. Survey, and located on the west 70 acres of the D. C. Ward tract. Panhandle Refining Co. and others' No. 4 J. D. Lowe, 150 feet north and 1,350 feet east of the SW cor. N half NW, Section 250, T.E.&L. Survey. Perkins & Cullum's No. 13 E. J. Dunagan, 150 feet north and 1,050 feet east of the southwest corner of their 65-acre lease out of Section 157, T.E.&L. Survey. Perkins & Cullum's No. 14 E. J. Dunagan, 150 feet south and east of the northwest corner of their 65-acre lease out of Section 157, T.E.&L. Survey. Remington & Terrell's No. 1 J. and C. Graham, 150 feet south and west of the NE cor., Section 2,249, T.E.&L. Survey. E. R. Riggs' No. 4 B. H. Larimore and others, 450 feet north and west of the SE cor. W half SW, Section 2,247, T.E.&L. Survey. Riner & Omohundro's No. 1 E. C. Keith-B, 150 feet north and 750 feet west of the southeast corner of the south 30 acres of the NE, Section 268, T.E.& L. Survey. Staley-Wynne & Co.'s No. 1 T. J. Routon, 450 feet north and 750 feet west of the SE cor. S half NE, Section 266, T.E.&L. Survey. Tidwell & Riggs' No. 1 B. B. Colley, 550 feet north and 150 feet west of the SE cor. S half SE, Section 242, T.E.&L. Survey. William Vandivert and others' No. 1 B. H. Larimore and others, 150 feet north and 450 feet east of the SW cor. S half, NW, Section 2,247, T.E.&L. Survey. R. J. Watson's No. 1 G. W. Terrell estate "A," 150 feet north and 1,250 feet west of the SE cor., Section 248, T.E.&L. Survey. Wo-Mack Oil Co.'s No. 1 Mrs. M. D. Peters, 150 feet south and east of the northwest corner of the north 10 acres of the Mrs. M. D. Peters 70-acre tract out of the H. F. Peters Survey, A-1,339. Wo-Mack Oil Co.'s No. 9 Stephens-Roach Co., 600 feet north and 150 feet east of the southwest corner of the Stephens-Roach Co. tract out of Section 1, B.B.B.&C. Survey, A-35. D. L. Wolf's No. 1 J. A. Leberman, 1,550 feet south and 450 feet east of the NW cor., Section 151, T.E.&L. Survey. Corzelius Brothers and others' No. 1 State Land, 1,950 feet southeast of the northwest line of the R. O. Woolfork Survey, No. 15, A-1,279, and 150 feet east of the west bank of the Brazos River. Nash & Windfohr's No. 1 E. S. Graham, 660 feet north and 2,800 feet west of the southeast corner of the Allen Hines Survey, No. 5, A-135. Shaw Oil Corp.'s No. 2 J. Kisinger-C, 3,100 feet northwest of the northwest line of the W. J. Orrick Survey, A-217, and 1,900 feet southwest of the southwest line of Section 3, B.B.B.& C. Survey, A-27, and located in the John Conner Survey, A-57, being 1,425 feet north and 200 feet west of the southeast corner of its 80-acre lease "C." Shaw & Knox' No. 4 M. R. Jarnigan, 400 feet northwest of the northwest line of the W. J. Orrick Survey, A-217, and 150 feet east of the bank of the Brazos River and located in the John Conner Survey, A-57. Texotus Exploration Co.'s No. 1 L. L. Mathis, 300 feet north and 200 feet east of the southwest corner of the J. E. Jones Survey, A-1,328.

Corrections

In Coleman County: Tidal Oil Co.'s No. 5 J. L. Stewardson, 1,365 feet north and 150 feet west of the SE cor., Section 91, E.T.R.R. Survey.

In Young County: Perkins & Cullum's No. 10 E. J. Dunagan, 450 feet north and 1,050 feet east of the southwest corner of their 65-acre lease out of Section 157, T.E.&L. Survey.

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Chain Pipe Tongs

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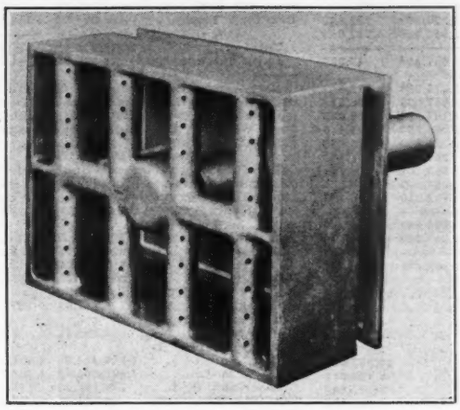

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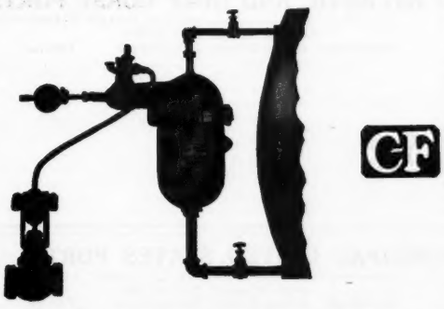

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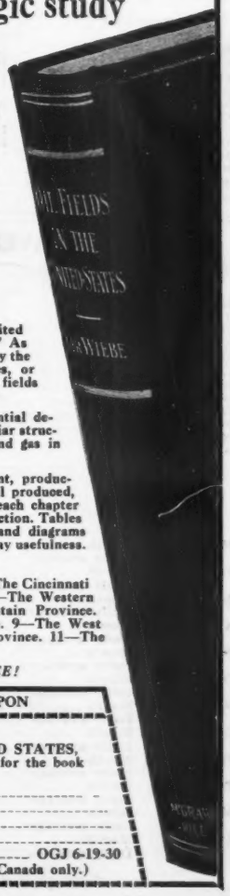

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